GENDER, FACULTY STATUS, AND DISCIPLINE AS PREDICTORS OF TEACHING IN HIGHER EDUCATION DURING THE COVID-19 PANDEMIC

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ABSTRACT

The COVID-19 pandemic has significantly changed the way of life for people and businesses around the world. Institutions of higher education and their constituents are no exception. As the pandemic began, colleges and universities moved their operations and teaching modalities online. The emergency shift to remote learning and operating has put a strain on higher education students, faculty, staff, and administrators. The influence of the pandemic has highlighted some vulnerabilities and areas of needed support within specific categories of faculty, which should continue to be explored and better addressed.

This quantitative study uses a faculty survey to examine the move to remote teaching from a faculty perspective during the COVID-19 pandemic. The study relies on secondary data analysis of data collected by the Office of Institutional Research at a large, public four-year institution in the mid-Atlantic region of the United States to answer the following research questions:

1. How has COVID-19 changed the usage of technology, various teaching methods, and adjustments to course expectations?
2. Are there age, faculty status, and/or discipline differences in usage of technology, various teaching methods, and adjustments to course assignments?
3. Post-COVID-19, how do faculty status/rank and gender influence maintaining work-life balance?

DEDICATION

This dissertation is dedicated to my son, James. Your silliness, patience, and love sustained me each day during this momentous task. May this serve as a reminder that you can do anything you put time and effort into.

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CHAPTER 1: INTRODUCTION

In March 2020, a novel severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2; formerly called 2019-nCoV) known as COVID-19 upended lives and industries across the world including institutions of higher education, and with it, students, faculty, and administration. Although the COVID-19 pandemic may not last forever, the effects of the pandemic on higher education and the necessary changes within higher education could. The influence of the pandemic also highlighted some vulnerabilities and areas of needed support within specific subsets of faculty, which should continue to be explored and better addressed.

The subsequent terms are used throughout the study with the following operational definitions:

Definition of Terms

1. Adjunct Faculty Member- Adjunct faculty are defined as part-time or contingent workers who are offered temporary employment on a per-course, per-semester basis. For the purpose of this study, the term adjunct faculty member does not include tenured, tenure track, full-time non-tenure track, and/or graduate teaching assistants. I will use the term adjunct faculty to refer to part-time contingent instructors. The institution in this study classifies adjunct faculty as part-time faculty who can work no more than eight credits each semester.
2. Asynchronous Instruction- Asynchronous instruction describes forms of instruction and learning that do not occur in the same place or at the same time. In this study, asynchronous instruction is used to describe online teaching and learning with no required synchronous meetings. Typically, instruction is

provided through an online learning platform such as Canvas with recorded lectures, discussion boards, quizzes, and other means of education. Students complete activities according to a course schedule, but do not come together at the same location and at the same time to learn.

3. Clinical Faculty- Faculty with a clinical appointment are full-time or regular part-time members of the university and are not eligible for tenure. Clinical faculty generally devote most of their time to clinically related activities (Vice Provost for Faculty Affairs, 2016).
4. Contingent Faculty- This term will be used to identify all faculty who do not hold tenure. A contingent faculty member is employed on a temporary basis or is employed on a contractual basis without guarantee of renewal. Faculty members considered contingent faculty include adjuncts, full-time non-tenure track faculty, and tenure-track faculty.
5. COVID-19- According to the Center for Disease Control (CDC), "COVID-19 is a disease caused by a virus called SARS-CoV-2" (CDC, 2021). COVID-19 is a new strain of the coronavirus that prior to 2019 was not identified in humans. The outbreak of this illness was first detected in Wuhan, China and has since created an international pandemic affecting the entire world.
6. Distance Education- There are many ways to define distance education. For the purpose of this study, I will be utilizing Holmberg's definition (Holmberg, 1986, pg. 26):

> *"Distance education is education which either does not imply the physical presence of the teacher appointed to dispense it in the place where it is received or in which the teacher is present only on occasion or for selected tasks."*

Distance education can occur in many forms (synchronous, asynchronous, etc.); regardless, the instruction takes place from a distance. Students from various locations complete coursework away from the instructor and/or the physical location of an instructor.

7. Global Pandemic- This term will be used interchangeably with COVID-19 pandemic. A global pandemic is the worldwide spread of a new disease. For the purpose of this study, I will focus on the COVID-19 pandemic that began in the late part of 2019 and has extended to the time when this dissertation was written. Its influence in the U.S. and on U.S. institutions of higher education became more pronounced in March 2020 and has continued to the present. The COVID-19 pandemic was first considered an epidemic and was later classified as a pandemic (CDC, 2020).
8. Hybrid Instruction- this term is used to identify course modalities that use a combination of online learning and face-to-face interactions.
9. Nontenure Track Faculty- Non-Tenure-track faculty make up about 20 percent of all faculty appointments in the U.S. higher education system. At the studied institution, nontenure-track faculty encompass "all full-time faculty who are classified as Lecturers, Researchers, Practice Faculty, Teaching/Instructional Faculty or Clinician Educator," (TAUP, 2020) and are non-tenurable appointments for a fixed term that are renewable and allow for promotion in rank.
10. Part-Time Faculty- This term will be used interchangeably with adjunct faculty. A part-time faculty member is employed for less than 30 hours per week and is only permitted to teach a maximum of eight credits of coursework per semester.

11. Practice Faculty-Practice track faculty are typically reserved for full-time nontenure-track faculty who are involved primarily in teaching in applied fields of study. Individuals holding this appointment are not eligible for tenure (Vice Provost for Faculty Affairs, 2016).
12. Synchronous Instruction- Synchronous instruction is used to define the modality in which students interact with their instructor(s) and classmates through virtual instruction. These interactions take place at times specified in advance when students register for the course. That is, these courses are held virtually at designated times during the semester and use video conferencing technology to hold "in-person" meetings despite the distance between students and instructors.
13. Teaching/Instructional Faculty- Faculty appointment through a teaching or instructional track are full-time faculty at an institution who are not eligible for tenure. Employees with this faculty status devote the majority of their time to instructional activities and may or may not assume obligations in research or clinical services (Vice Provost for Faculty Affairs, 2016).
14. Tenured Faculty- Tenured faculty hold secure employment indefinitely by the terms of their appointment by the President of a university. The American Association of University Professors and the American Association of Colleges and Universities created the following definition of tenure:

> *Tenure is a means to certain ends; specifically: (1) freedom of teaching and research and of extramural activities, and (2) a sufficient degree of economic security to make the profession attractive to men and women of ability. Freedom and economic security, hence, tenure, are indispensable to the success of an institution in fulfilling its obligations to its students and to society. (AAUP, 1940)*

Additionally, the AAUP defines tenure as an "Indefinite appointment that can be terminated only for cause or under extraordinary circumstances such as financial exigency and program discontinuation" (AAUP, 2021). Tenure is important to higher education because it safeguards academic freedom and allows faculty to conduct research that draws evidence-based conclusions free from corporate or political influence. Tenure also benefits the institution in providing stability and commitment from their faculty. (AAUP, 2021)

15. Tenure-Track Faculty- This term describes faculty who are eligible for tenure by the terms of their appointment. Typically, tenure-track faculty are eligible for tenure and in a probationary period of their employment prior to the consideration of tenure.

Historical Precedents

Major events such as pandemics and wars have historically changed the operations of institutions of higher education significantly. Some examples of altering events include the Civil War, Great Depression, and World War II. After the Civil War, the Morrill-Land Grant Act of 1862 provided land for states to create colleges and universities that focused on agricultural and mechanical arts. Their development led to the establishment of institutions of higher education that created opportunities for the "industrial class" to obtain social mobility through education (Singh, 2021). During the Great Depression, the New Deal programs provided funding for 600 buildings at colleges and universities and enabled 620,000 students to remain in college by enacting the Federal Work-Study program (Loss, 2012). After World War II, the federal government enacted the GI Bill and increased post-secondary educational funding to veterans (Bound & Turner, 2002).

Given the events since March 2020 and our history of change in higher education during times of crisis, it is relevant to ask the question, "How will higher education be affected by the COVID-19 pandemic?" This study will focus on the reports of the short-term effects on faculty, particularly female and contingent faculty, and their implications and potential long-term effects of the pandemic on higher education. Because the ongoing effects of the pandemic are still unknown, the information found in this study should be used as a beginning point to understanding how current and future support systems may be implemented at institutions of higher education.

Theoretical Framework

The theoretical framework of this study is based on gendered organizations theory and intersectionality. Gendered organizations theory argues that organizational structure is not gender neutral (Acker, 1990) and is especially useful to make my argument that gender should be considered when examining influences on faculty from the COVID-19 pandemic. Intersectionality "views race, class, gender, sexuality, ethnicity, and age, among others as mutually constructing systems of power" (Collins, 2020, p. 11). Acker (1990) defines a gendered organization as one in which "advantage and disadvantage, exploitation and control, action and emotion, meaning and identity, are patterned through and in terms of a distinction between male and female, masculine and feminine" (p. 146).

Building on this theoretical foundation, intersectionality has been utilized as a framework to understand how multiple social identities and social positions, including gender, can influence and inform one another. Collins and Bilge (2020) concisely defined intersectionality as:

> Intersectionality is a way of understanding and analysing the complexity in the world, in people, and human experiences. The events and conditions of social and political life and the self can seldom be understood as shaped by one factor. They are generally shaped by many factors in diverse and mutually influencing ways. (p. 2)

In the case of responses to the COVID-19 pandemic, an intersectionality framework is particularly useful in understanding different experiences and influences of faculty functioning.

Positionality

Similarly, my own experiences influence my development, implementation, and interpretation of the project. I began my teaching career by providing instruction in exclusively in-person courses and taught part-time as an adjunct faculty member from 2017 through the Spring 2020 semester. In the Spring 2020 semester, like others in higher education, I was required to move my course from in-person instruction to online instruction in response to the COVID-19 pandemic. Since March 2020, I have been teaching exclusively online. Some semesters my courses are taught synchronously with Zoom class meetings, whereas during other semesters my courses are taught asynchronously online with no required synchronous class meetings. In addition to my teaching responsibilities as an adjunct instructor, I work as an administrator supporting both online and in-person faculty. This role has provided me with both an

administrative and faculty perspective as my campus closed and moved to remote teaching, learning, and working.

It is important to note that I have experienced much of what I am writing about. I recognize that as an able-bodied, educated, middle-income, white female, I occupy a position of privilege. I was raised in a lower middle-class family and through financial aid and scholarships was able to attend a four-year university directly after high school. I attended college full-time, lived on-campus, and graduated in four years. The tuition cost of my post-secondary education was paid by my employer, granting me the privilege of enrolling in my master's and doctoral degree programs for a significantly reduced cost. My income and my spouse's income allow us to enroll our child in full-time, high-quality childcare, which I recognize as an added privilege.

Before reviewing the literature, it is also important to note that people who write about online education, contingent faculty, and gender inequalities in higher education may have a vested interest in the outcome.

Statement of the Problem

To my knowledge, there has not been specific research on the influence of the COVID-19 pandemic on specific faculty ranks and faculty genders in higher education. It would be compelling for researchers to address this gap in the literature by conducting a study to determine faculty response to the pandemic to discover if there are predictable patterns of differences in comfort with technology, continuity of courses, and work-life balance, among faculty who differ in rank and gender. Because the pandemic is ongoing and the necessary COVID-19 responses change almost daily, continuing to study the effects of this pandemic will be valuable to inform key administrators making necessary decisions regarding teaching modalities, faculty

trainings, and overall faculty supports to provide the best possible instruction for students and the well-being of a diverse faculty workforce.

Study Design and Research Questions

This quantitative study used survey methodology to study the move to remote teaching from a faculty perspective during the COVID-19 pandemic. The study employed secondary data analysis on data collected by the office of Institutional Research at a large, public four-year institution in the mid-Atlantic region of the United States. The methodology is described in more detail in Chapter 3. The research questions that guide the current study are as follows:

1. How has COVID-19 changed the use of technology, various teaching methods, and adjustments to course expectations?
2. Are there age, faculty status, and/or discipline differences in use of technology, various teaching methods, and adjustments to course assignments?
3. Post-COVID-19, how do faculty status/rank and gender influence maintaining work-life balance?

CHAPTER 2: REVIEW OF THE LITERATURE

As previously noted, although research is continually emerging on the effects of the global pandemic on industries and education, there remains a lack of focused attention on the specific influence on non-tenured instructors and women working in higher education. This gap in the current literature is one of the primary justifications for the current study. This chapter includes a review of the relevant literature on online education prior to the pandemic to provide a pre-pandemic perspective of online education. It also reviews the literature on COVID-19, faculty roles in higher education related to rank, gender disparities in the workplace, and specifically gender disparities in higher education.

Online Education Pre-Pandemic

Distance learning and online education had been around for decades prior to the COVID-19 pandemic and they have been widely debated in higher education. Distance education was previously viewed as a departure from "the conditions in which teaching and learning 'naturally' take place" (Larreamendy-Joerns & Leinhardt, 2006, p. 570). Being viewed as a 'pedagogical oddity,' distance education originally took place secondary to the typical university life. But, in the past two decades, distance education has become further embedded in university life and is no longer considered solely an extension of the university. With the spread of the internet and significant advances in technology, distance learning has become more common and has changed the landscape of formal education (Dumford & Miller, 2018; Larreamendy-Joerns & Leinhardt, 2006; Stalling, 2002). The term online learning was first used in 1995 when the first Learning Management System (LMS) was developed (Singh & Thurman, 2019). Today, colleges and universities use many different LMS platforms including

Blackboard, Canvas, Moodle, Google Classroom, and many more. This study will focus on the online education component of distance education. Keengwe and Kidd (2010) provide a historical context of online distance education development from the years 1975-2010 in the reproduced table below.

Table 2.1

Historical Context of Online Distance Education Development

Era	Focus	Educational Characteristics
1975-1985	Programming; Drill and practice; Computer-assistedlearning CAL	Behaviorist approaches to learning and instruction; programming to build tools and solve problems; Local user-computer interaction.
1983-1990	Computer-Based TrainingMultimedia	Use of older CAL models with interactive multimediacourseware; Passive learner models dominant; Constructivist influences begin to appear in educational software design and use.
1990-1995	Web Based Education &Training	Internet-based content delivery; Active learner models developed; Constructivist perspectives common; Limited end-user interactions.
1995-2005	eLearning	Internet-based flexible courseware delivery; increased interactivity; online multimedia courseware; Distributed constructivist and cognitivist models common; Remote user-user interactions.
2005 – present	Mobile learning and socialnetworking	Interactive distance courseware distributed online through learning management systems with social networking components; learning that is facilitated via a wireless device such as a PDA, a smart phone or a laptop; learning with portable technologies where the focus is on the mobility of the learner.

In part because of the advances in technology and increased use and comfort in using technology, the number of students enrolled in some sort of online education at colleges and universities has steadily increased over the last 20 years despite a decrease

in the overall number of students enrolled in postsecondary education (Seamon et al., 2018). In 2016, over 31 percent of all college students were enrolled in at least one online course, with about half taking exclusively online courses and the remaining half taking a mixture of online courses and in-person courses. Of the over 6.3 million distance education students enrolled in Fall 2016, about 5.2 million were undergraduate students and about 1.1 million were graduate students. Increases in online education have been seen at both undergraduate and graduate post-secondary education levels (Seamon et al., 2018). When noticing the declining number of college students with the increased number of students completing online courses, leaders at universities and colleges are feeling the pressure to expand their online course offerings (Watkins, 2021).

Distance education can sometimes be conflated with international education, but they are not the same. In Fall 2016, only 1.5 percent of students taking exclusively distance courses were international students attending U.S. institutions of higher education. There are only seven higher education institutions in the U.S. that enrolled more than one thousand international distance education students and only about 0.5 percent of international students choose to enroll in exclusively distance education courses and complete them from their home country (Seamon et al., 2018).

Beyond differences in international enrollments, pre-pandemic online education was not evenly distributed across institutions of higher education. Despite the growth of online learning as described above, there were still many colleges and universities that had no online presence. In Fall 2016, 18 percent of students enrolled in distance education went to private non-profit institutions, 13.1 percent of students went to for-profit institutions, and the majority (68.9 percent) of students went to public institutions (Seamon et al., 2018). More than half of all distance education students are accounted

for in just 5 percent of institutions, with private for-profit institutions such as the University of Phoenix-Arizona and private not-for-profit universities such as Western Governors University, leading the pack (Seamon et al., 2018).

Online Instructional Methods

As noted above, universities are beginning to offer an increasing number of online course options to students. Online courses are offered in a variety of modalities including asynchronous online, synchronous online, and hybrid formats. Online asynchronous instruction (anytime rather than same time) occurs online without real-time interaction between students and instructors (Coppola et al., 2002). Synchronous instruction, or fully virtual courses, allow students to interact with their instructor and classmates solely through the use of video conferencing technology (Reese, 2015). Hybrid instruction is a mixture of both online and face-to-face learning in a way that is intentionally combining of the two teaching modalities. This form of online education is not typically discussed in the online education literature. Prior to and during the pandemic, hybrid instruction was used by the surveyed institution.

One of the largest appeals and benefits to online education is its inherent flexibility for students and instructors. Asynchronous education is not bound by time or geographical constraints. Students can complete their coursework regardless of their physical location (King et al., 2001). Additionally, asynchronous courses create more opportunities to diversify student populations. Because of the added flexibility, opportunities for working parents, adult learners, transfer and returning students, and other non-traditional students who may not be supported by face-to-face classrooms are created (Reese, 2015). Synchronous online instruction offers a similar level of geographical flexibility; however, these courses are bound by time. Students are

required to attend a virtual course meeting at the same time, on the same day, as their instructor and classmates. Synchronous platforms such as Zoom, WebEx, Microsoft Teams, Google Classroom, and Blackboard Collaborate are used widely today by institutions offering online synchronous courses. These platforms provide students and instructors the ability to interact in real time with each other from a distance (Watkins, 2021).

Online courses allow for a level of flexibility that increases access to students and allows them to fit advanced education into their busy work and life schedules. With this flexibility comes the requirement for students to display more self-reliance (Reese, 2015). In online asynchronous courses, students learn without the regular assistance of face-to-face instruction and are required to keep track of weekly assignments and course materials in a more independent way than face-to-face students. While synchronous online instruction provides students and instructors with real-time virtual connection, some view this as undercutting the flexibility that online education provides. Concerns over equity in access to technology and internet services are also of particular concern. (Watkins, 2021). Specifically, access to adequate bandwidth to live-stream and participate in virtually meeting courses became a concern, especially for universities and colleges that serve lower-income students (Watkins, 2021).

Challenges to Online Education

There are obvious advantages to online education such as "increasing enrollments and profits, extending university reach, increasing student technological skills, mitigating the projected shortfall in instructors, eliminating of overcrowded classrooms, reducing infrastructure cost, allowing students to work at their own pace

and…, reducing faculty bias, and improving retention and graduation rates" (Palvia et al., 2018, p. 253). Along with these advantages, challenges and issues also arise from offering online courses and programs. Critics of online education argue that online learning cannot provide students with the same level and quality of education that traditional, face-to-face courses can (Reese, 2015). An additional concern is the isolation associated with online courses that can lead to issues with mental health, a topic addressed later in this chapter.

With the expansion of online learning, institutions are now faced with the challenge to compete on a global scale. Students are more readily able to complete coursework from anywhere in the world and institutions have the added pressure to market and appeal to students who desire online alternatives for course offerings. As student enrollments decrease at traditional face-to-face colleges and universities and increase at institutions offering online learning programs and course offerings, institutions are forced to react quickly to the changing marketplace (Keengwe & Kidd, 2010; Seamon et al., 2018; Stallings, 2001; Watkins, 2021). Additionally, institutions of higher education need to ensure the quality of online courses. Specifically, colleges and universities offering online courses need to ensure that the quality of their online courses and programs match the quality of the traditional face-to-face classes in response to concerns about online education limitations in replicating critical classroom interactions like prompt feedback, engaging activities, adaption to individual needs, instructional flexibility, and social interaction (Larreamendy-Joerns & Leinhardt, 2006). Additional accreditation and governmental oversight of online programs has recently been enacted through programs such as the National Council for State Authorization Reciprocity Agreement (SARA).

Online learning has several distinctive characteristics that influence how faculty design and implement courses (Dumford & Miller, 2018). One important consideration is proficiency with which an individual faculty member can access and apply the available technology to their class. Technology is constantly changing and improving but if faculty do not know what is available and how to best apply it to their online classrooms, the technology does no one good (Stallings, 2001). Teaching a course in an online format takes time and a level of faculty buy-in/commitment. If faculty do not feel comfortable or have the willingness to teach online, their course is less likely to be successful (Watkins, 2021). The tenure and promotion structure at colleges and universities often does not reward faculty for the time they commit to building and designing online curricula. Providing the necessary attention to both face-to-face and online courses can put an added stress on faculty and there is an additional challenge that students may hold the unrealistic expectation that faculty are constantly available to attend to their questions or needs (Reese, 2015).

Students also experience challenges related to online learning. Although online education allows students to fit courses into their life and work schedules, it also requires them to be more self-reliant. Students are expected to keep track of their learning in a more independent way than their in-person peers without face-to-face assistance and instruction (Reese, 2015). There are additional concerns over students' ability to have meaningful interactions with their peers and instructors (Keengwe & Kidd, 2010). Ensuring students are engaged in the course materials and have a level of self-motivation needed to remain successful in the class is imperative to student success (Dumford & Miller, 2018).

In addition to these considerations, there are also logistical aspects of online learning that must be discussed. Access to strong internet connection, necessary technology, and support at the faculty and student level is critical for the success of online education. Technological fails can completely derail an online course. In addition to having the adequate technology and access to internet, it is also important for faculty and course designers to create classes that are easy to navigate. (Dumford & Miller, 2018). Students need to find their way through a course without getting lost.

Institutional Response to Crises

The unprecedented nature of the COVID-19 pandemic has caused institutions to grapple with how to respond to this world-wide crisis. As we enter the third year of the COVID-19 pandemic, it is important to think about not only COVID-19 specific impacts, but also how institutions have responded to crises in the past and in the present to help prepare for better responses in the future. In the following section, I will examine literature on how higher education has responded to other crises to draw parallels and possible learning opportunities on how to respond better and become better equipped and prepared to handle rapid, necessary changes.

The threat of campus interruption will continue long after the COVID-19 pandemic ends. As global climate change increases the frequency and severity of natural disasters, universities will continue to feel the impacts like those felt by universities in the Delta region of the United States during Hurricane Katrina (Collins et al., 2008). Additional disasters such as the Iowa River Flood, Hurricane Sandy, Hurricane Harvey, Tubbs Fire, and the Woolsey Fire (Field, 2020; Mello & West, 2020) caused catastrophic devastation in their affected areas of the United States and impacted the ability to continue normal operations at universities and colleges in the

region. Natural disasters have the ability to temporarily shut down institutions of higher education, decrease enrollment for even years after the initial crisis, slow students' degree progress, and cause faculty and staff layoffs (Mello & West, 2020).

In all of the cases above, institutions were forced to pivot quickly and respond to the current state of their institution's physical ability to provide education and services on campus. These institutions used technology along with local, regional, and federal support when available to remain as operational as possible and continue educating throughout the affected semester(s). Additionally, the colleges and universities used the resources they had to address both the physical needs (e.g., shelters) and emotional needs (e.g., counseling services) of the university and local community. After experiencing these disasters, universities found it important to focus on clear and frequent communication of important information (Field, 2020; Mello & West, 2020). With the advancement of technology, it is now easier to continue operations virtually than it was after Hurricane Katrina devastated universities and colleges in the Delta region. Access to technologies such as Zoom, Learning Management platforms, and remote network access provided the ability for many universities to pivot readily into remote learning during the COVID-19 pandemic. It should be noted that it is critical for universities to maintain up-to-date trainings on all mission critical technologies to provide an ease of transition (Cesco et al., 2021).

COVID-19, a Global Pandemic

In December 2019, a series of cases that resembled viral pneumonia were discovered in Wuhan, China and reported to the World Health Organization's (WHO) Country Office in China. Upon further analysis, samples taken from the lower respiratory track of patients indicated that a novel coronavirus was the cause of the

patients' symptoms (Huang et al., 2020). The first confirmed case of COVID-19 in the United States occurred on January 20, 2020 in Washington state (Berguist et al., 2020). On February 29th the first COVID-19-related death occurred in the United States (Allam, 2020) and on March 7th 2020, the University of Washington became the first large university to shut down due to COVID-19, pivoting all in-person activities and learning to remote instruction (Hess, 2020). Within this time, an increased number of colleges and universities shifted to remote learning and closed their doors. After Harvard University announced that the entire university would move to online learning, systems of higher education across the United States followed suit (Hess, 2020). As the United States and the rest of the world learned more about the danger of COVID-19, remote work and schooling became normal practice whenever possible. By March 26, 2020, over 1,100 universities and colleges closed their campuses due to the COVID-19 virus (Hess, 2020).

Social and Emotional Impact from COVID-19

The COVID-19 pandemic has led to mental health challenges due to acute stress, loneliness, anxiety, and depression. Because of the necessary social distancing recommendations, people are more isolated than ever. When faced with uncertainty and ongoing public health crises such as the COVID-19 pandemic, people turn to the media to obtain critical information and guide them on how best to act. But media may amplify stress symptoms, worry, and perceived risk. In the case of COVID-19, conflicting messages in the media may increase levels of stress (Holman et al., 2020). Early findings from China indicate that the mental health issues created and exasperated by the pandemic are serious. A study conducted in China during January and February 2020 showed that 54 percent of participants rated the psychological

impact of the pandemic as moderate to severe. Another survey conducted around the same time found that 35 percent of participants indicated the same psychological impact (Holingue et al., 2020). Data from Holingue and colleagues (2020) suggest that mental distress is increasing. The study also showed that females, unmarried, and younger age were at greater risk for increased levels of mental distress (Holingue et al., 2020). Czeisler and colleagues (2020) reported that 40.9 percent of survey respondents reported at least one adverse mental or behavioral health condition related to the pandemic and 13.3 percent started or increased substance use to cope with the stress and/or emotions associated with COVID-19. Additionally, the study found that 10.7 percent of participants considered suicide in the 30 days before completing the survey. Severe mental distress was significantly higher in participants aged 18-24 years and in minoritized racial/ethnic groups (Czeisler et al., 2020).

Typically, children and young adults are less likely to experience a severe reaction to the COVID-19 virus. Despite this, there are a number of potential adverse effects on children and young people's health not caused by COVID-19 directly but caused by the ramifications of the pandemic. With daycare and school closures, employment uncertainty, increases in food insecurity, and limited access to primary health care, in part due to parental concerns about seeking treatment during the pandemic, an increase in adverse childhood experiences such as family violence, nonaccidental trauma, and mental health are expected to increase throughout the remainder of the pandemic (Chanchlani et al., 2020). As noted above, studies are already showing significantly higher increases of mental distress in younger-aged people.

COVID-19 and Education

COVID-19 has brought significant changes and made a devastating impact on the education sector. With stay-at-home orders in place, institutions of education needed to quickly pivot to remote learning. Similar to the governmental response to COVID-19, the educational response to COVID-19 has relied on local decision making that differed from state to state, city to city, and school to school. The transition to remote learning has been inconsistent and has revealed and made worse inequities in the U.S. education system (Bloom et al., 2020). On March 27, 2020, the U.S. federal government passed the Coronavirus Aid, Relief, and Economic Security (CARES) Act, which included support for K-12 and higher education institutions in the form of grants to be used to offset the additional costs and income losses due to the pandemic. The sections below will focus on the pandemic influence on Pre-K through 12 schooling and post-secondary education. Additional monies were provided through the Governor's Education Relief Fund to provide emergency support grants for childcare, K-12, and higher education with $18.5 billion allocated to the Supplemental Nutrition Assistance Program (SNAP) to address the growing need to provide nutrition to children in need (Bloom et al., 2020).

Pre-K-12 Education

While this study focuses on higher education faculty, it is important to address the impact COVID-19 has had on the U.S. childcare market and pre-K-12 education. Many faculty are also parents who not only had to make adjustments to their professional lives, but also had to quickly pivot their childcare and children's schooling efforts. The pandemic has forced parents across professions to become their children's

teachers and daytime care-takers while balancing and managing their professional obligations.

In late March 2020, U.S. states and territories were forced to determine when, if, and how to close schools and support students, teachers, and parents as they made the transition to remote learning. States and schools received little guidance from the federal government and government agencies such as the Centers for Disease Control and Prevention (CDC), which frustrated school superintendents (Slavin & Storey, 2020). By the end of March 2020, all 50 states announced mandatory or recommended closures of public schools. Most states required remote or virtual learning in place of in-person courses and some states announced that schools would remain closed for the entire school year. Other states waited to eventually announce the closure of schools for the year until April or May. After it was clear that schools would remain closed for a prolonged period, states petitioned the federal government for waivers on the required number of school days and hours in a year along with standardized testing requirements (Slavin & Storey, 2020). Although the ongoing effects of the pandemic have yet to be seen or recorded, initial data confirm some troubling trends. In spring of 2020, only 12 percent of teachers reported that they were able to cover all or most of the curriculum taught in a normal school year (Hamilton et al., 2020).

The sudden shift to remote learning created a steep learning curve for most teachers, administrators, students, and parents. Teachers were expected to make significant changes to their lesson plans, were required to learn a new set of technologies, and teach in an entirely new way. School administrators had to figure out new communication measures, find new ways to support teachers, distribute necessary technology to students, and provide resources to students and parents. Students

needed to learn a new set of technological skills and adapt to this new way of learning. Parents who previously relied on schooling and daycares to provide a safe and educationally fulfilling environment were forced to figure out alternative childcare arrangements and assist their children with adapting to the new technologies of remote learning. Parental responsibility for managing children's learning increased and a shift in parent's division of domestic labor and time spent doing domestic work increased significantly during the pandemic (Carlson et al., 2020; Greenhow et al., 2021). An increase in domestic responsibility was seen for both mothers and fathers, with mothers still shouldering a significantly larger portion of domestic responsibilities (Carlson et al., 2020). Mothers provided most of the homeschooling and absorbed most of the lost childcare support (Carlson et al., 2020).

Schools play an important role in not just the education of students but also their social, emotional, and overall wellbeing. For example, schools provide necessary free or reduced lunch programs that keep children fed and address some of the nutritional needs for the most vulnerable students. Schools also provide a safe place for students who are in difficult family environments. Districts needed to develop plans to address how to continue providing these vital services for students (Slavin & Storey, 2020). They also had to address student and faculty technology needs such as computer equipment and internet access.

Higher Education

The COVID-19 pandemic has brought on a major transformation of academic life. Transitioning to teaching in an online environment can be perceived as challenging in 'normal' circumstances. Adding in a global pandemic, economic recession, and social and political unrest can increase the anxieties and pressures faculty face when

preparing and delivering course content. In March 2020, much of the U.S. higher education system pivoted to remote learning in response to the global health crisis known as the COVID-19 pandemic. The fast pivot to remote learning left many instructors without substantial time to prepare and respond to the changing needs of their students and their own life demands (Bhagat & Kim, 2020).

The COVID-19 pandemic affected higher education on a global scale and has brought numerous challenges to the higher education community. While the pandemic has affected colleges and universities in differing ways and they are responding in different ways, some similarities can be seen. In the Spring of 2020, nearly all colleges and universities were forced to move to an online format, which led to removing students, faculty, staff, administrators, and other campus constituencies from campus and their normal routines (Kelly & Columbus, 2020; Schleicher, 2020). Much like K-12 schools, institutions of higher education do much more than educate students. They are major research centers, and sports and entertainment venues. Many colleges and universities have auxiliary enterprises such as housing, dining, athletics, parking, and transportation, all of which have been deeply affected by the pandemic (Kelly & Columbus, 2020). Some institutions of higher education also have international students and are classified as host educational institutions. As countries shut their borders in response to lockdown measures, the legal status of international students in their host countries and visa applications for future semesters were in question (Schleicher, 2020). This situation has created additional educational and financial issues for not only students but also colleges and universities. Institutions also have the burden of making multiple alternative plans for reopening efforts and ensure necessary precautions are in place to make sure students, faculty, and staff are as safe as possible.

In the Spring 2020 semester, students reported greater challenges in engaging with their coursework. One study found that students showed a stronger preference for face-to-face learning than for online learning and that students who preferred face-to-face learning struggled to adapt to online learning. Students in the same study also reported a decrease in the ability to complete assignments on time, be successful in classes, discuss topics with classmates and/or professors, and manage their time (Aguilera-Hermida, 2020). Another study found that students expressed lower satisfaction with their courses and indicated they received less feedback from faculty and had a more challenging time understanding course expectations after the onset of COVID-19 (Warfvinge et al., 2021). This response has led to concerns over student retention and recruitment. Further, research has shown low-socioeconomic status students and academically underprepared students struggle much more with online courses (Schleicher, 2020). Additionally, students are experiencing the same hardships as the rest of the population, which may influence their ability to continue in their studies (Schleicher, 2020).

Institutions of higher education are now experiencing greater financial hardships as a result of the global COVID-19 pandemic. Financial hardships have been widespread and may force colleges and universities to significantly modify their operations or close. Because of the unprecedented nature of the pandemic, it is difficult to predict future enrollment and infrastructure considerations surrounding remote learning experiences. Tuition revenue is one of the primary sources of revenue for institutions of higher education. A reduction in enrollments could be potentially devastating (Collins et al., 2021). State and local funding is another major source of revenue for public colleges and universities. States have already reported revenue

declines as a result of the pandemic and may need to offset the reduction in revenue by providing less support to public post-secondary institutions (Collins et al., 2021). The pivot to remote learning has also reduced the income associated with most auxiliary operations such as housing, parking, dining, and sporting events.

Faculty Roles Prior to and during the Pandemic

Pre-Pandemic Use of Contingent Faculty

The use of contingent faculty at four-year higher education institutions has been increasing since the 1970s. Today, over 50 percent of faculty members are not appointed to tenure-track positions but are hired as non-tenured faculty or adjunct instructors (Meixner et al., 2010). "According to the American Association of University Professors (American Association of Professors, 2018), approximately 3 out of 4 instructional staff are non-tenure-track and more than 50 percent hold part-time appointments" (Morris, 2016, p. 1). Part-time instructors in higher education have nearly doubled since the 1970s and continue to increase year after year (Bettinger & Long, 2004). In 1967, only 20 percent of faculty members worked part-time in the United States. By 2000, 43 percent of all faculty positions were part-time (Feldman & Turnley, 2001). At public research and doctoral institutions, adjunct instruction increased from 50 percent in 1987 to 80 percent in 1999. Adjunct instructors are making up an increasing proportion of new hires and are also replacing full-time positions (Feldman & Turnley, 2001).

The increased reliance on adjunct faculty members can be attributed to the need for flexible staff options and the need to reduce instructional costs due to budgetary shortfalls (Bettinger & Long, 2004). As budgets continue to rise and state appropriations continue to decrease, colleges and universities rely more and more on adjunct instructors to teach courses (Meixner et al., 2010). According to Klein and colleagues

(2001), the cost of an adjunct instructor is about 40 percent less than that of a full-time faculty member. The majority of colleges and universities do not pay adjuncts fringe benefits, making costs even less (Klein et al., 2001). There are many researchers who also attribute the rise of non-tenure track full-time and part-time faculty to the oversupply of PhDs in many academic disciplines (Roemer & Schnitz, 1982; Rosenblum & Rosenblum, 1990; Zhang et al., 2015). There are more graduates from these programs than the job market can support. For example, less than half of the 8,000 graduates awarded PhDs in English and foreign languages between 1990 and 1995 found tenure line teaching jobs within a year of receiving their degrees (Klein & Weisman, 2001).

Another factor contributing to reliance on adjunct faculty is the experience and expertise that they offer from outside academia relative to most full-time faculty. That is, adjunct faculty are often valued for their occupational expertise and years of on-the-job experience (Feldman & Turnley, 2004). Despite adjunct faculty being hired by the semester or on short-term bases, many continue to work for the same institution year after year (Maynard & Joseph, 2008). Colleges and universities that can retain exceptional adjunct faculty benefit from their familiarity with the institution and their developed teaching skills from years of experience in the classroom (Meixner et al., 2010).

According to Morris, there are said to be two types of adjunct or contingent faculty. The first group is made of instructors who have established careers and either work full time elsewhere or are retired and have time to teach on top of their other work responsibilities. The second group is made of instructors who wish to be full-time faculty but are unable to find employment outside of part-time work as adjunct faculty. This group of contingent employees often work at a number of institutions to make

ends meet and are often considered the most vulnerable of teaching faculty (Morris, 2016).

One of the main differences between full-time and adjunct faculty members is their commitment and buy-in to an organization. According to DeLotell and Cates (2016), research has long indicated that employees who are committed to an organization are more effective. Part-time instructors often work at a number of universities or have full-time positions elsewhere. Their time spent on campus is often minimal and the relationships they build are usually only with their students they have in class. Adjunct faculty are not typically included in university or departmental meetings and are not included in committee or research work (DeLotell & Cates, 2016). Gaining commitment beyond the expectations of the paycheck for adjunct faculty is challenging and runs the risk of exploitation for unpaid labor.

There are several concerns associated with the increased use of adjunct instructors, the first being experience and expertise. Adjunct instructors typically have less experience working and teaching at higher education establishments than full-time faculty members (Klein et al., 2001). They are also typically new to their careers or have recently retired from their full- time profession. An increased amount of support for in-classroom teaching techniques is often needed to produce the best quality instructors. Best practices for integrating technology into the classrooms are often needed (Klein et al., 2001), especially within the retiree population of adjunct instructors. Adjunct instructors are also mobile and not often connected with the host university or college. Their mobility and the common need to work at more than one institution inhibits them from forming a bond with students. According to Klein and colleagues (2001), one of

the main limitations that students complain about regarding adjunct instructors is their inaccessibility outside of the classroom.

The rise of contingent faculty has raised concerns about who is responsible for developing and implementing overall "learning goals, a coherent curriculum across several years, participating in governance and service, and providing campus leadership around innovation and reform" (Kezar & Gehrke, 2016, p. 1). As the reliance on contingent faculty increases and tenured positions are eliminated, who will take charge of implementing curricular planning and who will take responsibility to ensure all learning goals are met? Additional concerns regarding this growing reliance on contingent faculty include research findings that the use of contingent faculty on campuses is negatively shaping student outcomes including graduation, retention, and success in future courses (Kezar & Gehrke, 2016). Umback (2007) posits that these results may be due to contingent faculty being less able to utilize effective educational practices because of the lack of supportive policies and resources allowing them to thrive.

Stress and work-life balance struggles are also associated with faculty rank. Thorsen (1996) found that lower-ranking faculty reported greater stress than those who are tenured full professors. Consistent with this research, Rosser (2004) found that higher ranks such as associate and full tenured professors are associated with lower levels of stress. Additionally, Rosser found that stress declined as the number of years of service increased for faculty. Higher levels of stress are associated with lower rank and untenured status. Rosser (2004) also found that tenure-track assistant professors perceived a lower level of work-life satisfaction than associate and full tenured

professors and contingent faculty. Gmelch and colleagues (1986) offers the following explanation for these results:

> The higher levels of stress experienced by the lower ranks and by nontenured faculty might be tempered by addressing the question of the overly vague specification of the criteria for tenure and promotion: How many journal articles, books, or grants are expected? How important are one's teaching and service contributions in comparison with research accomplishments? These are the typical questions underlying faculty uncertainty, and they are questions that thoughtful deans and central administrators would be wise to address with care and intelligence. (p. 282)

These findings suggest that early career faculty experience greater stress and challenges to balancing work-life demands.

Faculty and COVID-19

Faculty across rank and gender are significantly impacted by the pandemic. As colleges and universities moved to remote learning, concerns over pedagogical adaptation, technology learning curves, and best practices to support students developed. A Canadian study reported feelings of never-ending repetitiveness, the need to juggle multiple responsibilities with limited sense of direction under pressure, and feelings of sadness and loss (VanLeeuwen et al., 2021). The endless pressing tasks compounded with reduced social contacts and, for some, significant loss due to the pandemic all while grappling with the uncertainty of the pandemic were reported to take a toll on faculty (VanLeeuwen et al., 2021).

Due to the many challenges and changes from COVID-19, Oleschuk (2020) has recommended providing tenure-track faculty with a one-year extension on their tenure clocks to allow additional time to meet the necessary criteria. The institution at which the data for the present study were collected has implemented this suggestion. Oleschuk also recommends providing more research and teaching support through

graduate Research and/or Teaching Assistants, especially junior faculty with care demands (Oleschuk, 2020).

Age and Online Teaching Experience

In addition to faculty status, rank, and gender, faculty age is another crucial demographic that may affect technology comfort levels and preparedness to adopt digital tools for teaching and research (Owan et al., 2021). Previous research at the beginning stages of online learning has shown that technology adoption decreases as age increases (Waugh, 2004). More recently, Van derKaay and Young (2012) found that old faculty were no less likely than younger faculty to use technology, but overall, their use of technology was slightly less. Older faculty were also more likely to consider technology as a source of stress (Van derKaay & Young, 2012). Although research during the COVID-19 pandemic is only beginning to reach the literature, there have been some studies showing the same trends in technology adoption and comfort related to age. In a different context, Owan and colleagues (2021) found that age was a significant predictor of faculty preparedness to adopt electronic tools at African universities during the COVID-19 pandemic. Another study found that faculty age had a significant negative effect on the behavioral intent to adopt various technologies during the time of COVID-19 (Utami, 2021). Zalat and colleagues(2021) found that medical faculty at a university in Egypt under 40 years are more accepting of e-learning. Based on these studies, I explore age and faculty technology use during the pandemic in the present study.

Gender

Beyond faculty rank, gender disparities were highlighted and, in many ways, deepened since the COVID-19 pandemic (Górska et al., 2020). Gender issues in the

workplace are traditionally associated with the struggle to obtain equal pay, opportunity, and recognition. Women continue to be disadvantaged in labor markets despite continued global work to highlight and eliminate issues of gender discrimination and break down gender barriers. Women earn 79 cents for every dollar that men make in the United States and the pay gap is greater for women with children and older women (Bichsel & McChesney, 2017). These issues can be seen across industries including higher education. With respect to higher education, gender disparities can be seen in multiple ways: the sheer number of female relative to male faculty, gender discrepancies in hiring of tenured and tenure-track faculty, those who are awarded tenure, and those who are promoted to Full Professor. There are also differences in research active faculty at an institution. The following section will review gender disparities in higher education to provide context for why it is important to look at how the effects of the COVID-19 pandemic are especially pronounced in female faculty.

Gender Disparities in Higher Education

Gender inequity has been studied extensively in higher education. The barriers of gender discrimination are still present today and are felt by faculty, administrators, and students. We see gender discrimination both vertically and horizontally in higher education administration and faculty, meaning that gender discrimination exists in both leadership positions and across faculty positions. Women make up 50.8 percent of the population in the United States (Warner, 2014). At the undergraduate level, woman make up more than 57 percent of students in the U.S. (COE- Undergraduate Enrollment, 2021) and at the postbaccalaureate level women make up more than 60 percent of students in the U.S. in 2019 (COE- Postbaccalaureate Enrollment, 2021).

Despite more women seeking and completing degrees, only 44 percent of tenure-track faculty and 36 percent of full professors are women (American Association of Professors, 2018). Additionally, women faculty members make significantly less than their male counterparts across rank, holding highest degree earned constant (American Association of Professors, 2018). On average, women in full-time faculty positions earn about 81 cents on the dollar earned by male faculty (Colby & Fowler, 2020). Women are also more likely to be employed as part-time faculty, putting them in a vulnerable employment category with limited job security. Institutions of higher education are not gender neutral.

Consistent with gendered organizations theory, greater gender disparities can be found in specific fields of study. Women faculty across some STEM fields are an extreme minority (Casad et al., 2021). For example, only about 15 percent of tenure-track engineering faculty, 14 percent of computer science tenure-track faculty and 31 percent of all academic positions in neuroscience across all faculty ranks are women (Casad et al., 2021). There are a number of causes of gender disparities in STEM that can be seen in other higher education disciplines as well. Typically, the underrepresentation of women in STEM faculty positions is attributed to the lack of women obtaining advanced degrees in the field. It is important to note that there are more women obtaining doctoral degrees in STEM than ever before but the number of female STEM faculty has not increased.

Female higher education administrators and leaders also make less than their male counterparts. In 2001, women administrators earned about 77 cents on the dollar relative to male administrators. This amount increased to about 80 cents on the dollar in 2016 (Bichsel & McChesney, 2017). Improvements are slowly being made to narrow the

gap, but a gap still exists. Roughly half of all higher education administrators are women, which indicates that women are well-represented in administrative positions as a whole. However, when looking at the type of positions women hold in higher education administration, women are disproportionally represented in lower-level positions and the representation of women in higher-paying and more prestigious roles is dramatically lower. Only about 40 percent of women are in senior officer and dean roles and less than 30 percent are in top executive roles, such as university presidents (Bichsel & McChesney, 2017).

Workplace stress is also more commonly associated with women (Smith et al., 1995; Voakes, 2002). "Wherever stress enters the academic life, whether it is stress induced by technology or any other sources, female professors feel the stress more than their male colleagues" (Voakes, 2002, p. 331). This is true regardless of faculty rank. Additionally, female faculty were found to place increased pressures on themselves due to setting high expectations (Smith et al., 1995). The negative relationship between increased levels of stress and the likelihood of women faculty leaving or being less successful than their male counterparts can be seen throughout research (Hart & Cress, 2008).

COVID-19 Impact on Gender Disparities

The COVID-19 pandemic has amplified and exacerbated pre-existing gender inequities and class privileges in academia and beyond. Many working parents were forced to work from home while balancing work and childcare responsibilities due to stay-at-home orders and social distancing measures. As schools and childcare centers closed, parents took on significant added childcare and schooling responsibilities.

Heggeness (2020) found that mothers who had jobs were more likely to temporarily stop working at the beginning of the pandemic and women with school-aged children were 68 percent more likely to take a leave from work than women in general. In contrast, Heggeness found that there were no significant differences in leave time between fathers or men and women who were not mothers. "When mothers must take leave for childcare purposes during a national crisis while their colleagues continue working, it has detrimental effects on opportunities for career advancement and leaning in at work" (Heggeness, 2020, p. 1069). Another study found that women were more likely to face interruption while working than men were (Adams-Prassl, 2020). In the U.K., a study showed that women of children under the age of five completed 78 percent more childcare than men did (Office for National Statistics, 2020). Academic parents have not been immune to the conflicting career and parental/domestic pressures during COVID-19. The consequences can be seen through a reduction in research articles submitted and published by women, a reduction in work-life balance, and increased pressure to take on more domestic responsibilities. For example, the *British Journal for the Philosophy of Science* has seen a decrease in article submissions from women and the *Comparative Political Studies* journal saw a 50 percent increase in submissions from men (Fazackerley, 2020). Journal editors from fields of International Studies, Political Science, Economics, Medicine, and Philosophy have seen an increase in submissions overall but in most cases, a decrease in submissions from women (Oleschuk, 2020). A study conducted in spring 2020 via 28 interviews with academics in Poland found that female faculty felt a greater need to support students' general emotional well-being than do male faculty, indicating additional emotional labor being provided by female faculty. Additionally, women had a harder time

focusing in their home environment on research and scholarly activity, whereas men were more likely to prioritize their professional work over home obligations (Górska et al., 2021).

Hypotheses

As discussed, the COVID-19 pandemic has had wide-reaching effects on all aspects of life including the functioning of higher education. The present study examines faculty reports of behaviors before and after the onset of the COVID-19 pandemic. In this study, I provide a descriptive picture of faculty reports of behaviors before and after the onset of the COVID-19 pandemic including examination of differences by discipline, faculty status/rank, age, and gender. I also examine faculty status/rank, age, and gender as predictors of faculty responses to COVID-19 including reports of comfort with technology, continuity in courses, and work-life balance. I test the following hypotheses:

Hypothesis 1: Faculty will report changes in technology use, teaching methods, and course expectations after the onset of COVID-19 relative to their practices before its onset. Based on previous research, it is hypothesized that faculty will report greater use of technology after the onset of COVID-19 than they reported of their pre-COVID-19 use. I also examine changes in teaching methods reported before and after the onset of COVID-19. I anticipate that faculty will report a decrease in teaching methods more typically associated with in-person experiences such as lab activities and experiential/community-based learning. I hypothesize that faculty will report adjusting timelines and deadlines for assignments, greater allowances for access to resources (e.g., open notes and open books during examinations), and reduced assignment requirements.

Hypothesis 2: Age, faculty status, and discipline will predict changes in technology use, teaching methods, and course expectations after the onset of COVID-19 than before its onset.

In terms of moderators of the change in reports from pre-COVID-19 behavior to teaching behaviors after the onset of COVID-19, I explore the relations among these variables. On the one hand, it is possible that early career faculty will report greater reports of change relative to more senior faculty because they more readily implemented online technologies. On the other hand, it may be that more senior faculty report greater changes than early career faculty because they perceived the transition to online instruction to be a larger burden. Because the direction of this relation is not clear, I explore these relations and report the descriptive statistics to offer greater context and understanding of faculty experience.

Similarly, I explore discipline as a predictor of faculty reports of change. I recognize that the transition to online instruction represented a greater challenge to faculty in some disciplines than in others. For example, it was probably easier for faculty in disciplines that routinely rely on faculty to engage with technology (e.g., STEM fields, engineering) to transition to online instruction than it is for those from disciplines that do not routinely engage with technology or are especially reliant on face-to-face interaction. The unknown is the extent to which faculty engaged in change. That is, faculty in non-technology disciplines may have found other ways to engage with students outside of reliance on technology and they therefore would report less change than those who did engage with technology. However, if faculty from non-technology disciplines did engage with technology to continue instruction, it would be a greater change for them than it would be for those who routinely engage with

technology in their discipline. Because the extent to which faculty moved to online technology-based instruction is unclear, I explore these relations in these data and will report the descriptive statistics.

Hypothesis 3: Gender, faculty status/rank, and age will predict challenges in maintaining work-life balance.

Hypothesis 3a: I predict that women will report greater challenges in maintaining work-life balance. Based on the extant literature, I hypothesize that women will report greater challenges in maintaining work-life balance due to increased domestic responsibilities. Additionally, I anticipate that women in the 'sandwich generation' will report the greatest challenge in maintaining work-life balance due to increased domestic responsibilities and increased caregiver responsibilities associated with children and older parents.

Hypothesis 3b: I hypothesize that regardless of gender, faculty status will predict challenges in maintaining work-life balance, such that faculty who are not tenured or tenure eligible will report greater work-life balance difficulties than tenured faculty. Faculty members who are non-tenured or not tenure eligible are anticipated to report greater challenges to maintaining work-life balance.

Hypothesis 3c: I hypothesize that age will predict reports of work-life balance challenges. I predict that faculty between the ages of 30 and 45 will report greater challenges in maintaining work-life balance than those outside this age range. This hypothesis is based on research that suggests parents of school-aged children have had the most difficulty balancing time between domestic and parenting responsibilities and work obligations.

Hypothesis 3d: I predict that women with contingent faculty status will report the greatest challenges in maintaining work-life balance relative to other faculty groups. Thus, I will test for a significant interaction between faculty status and gender as a predictor of work-life balance.

To examine work-life balance, I conduct statistical analyses of the items assessing work-life balance to examine how they hang together. Based on these results, I form composites to serve as our outcome variables.

CHAPTER 3: METHODOLOGY

Context for the Study

The study investigated the instructional changes and challenges faced by faculty at a large, public university during the COVID-19 pandemic. I report the results of secondary data analysis of data provided by the Office of Institutional Research and the Center for the Advancement of Teaching.

Sample

All full-time and part-time instructors (tenured, tenure track, non-tenure track, adjunct) from domestic campuses at a large, mid-Atlantic institution of higher education in the United States were invited to participate in the survey. There were 1,423 surveys returned out of 3,809 sent, providing a 37.4 percent response rate. Of these, 201 completed only the questions asking for demographic information. Moreover, some respondents completed only part of the survey. Consequently, the sample size for the various analyses will vary. An analysis was conducted to ascertain if the respondents who completed the survey were significantly different from those that only completed a part of it. The only significant difference found was that the respondents that completed the whole survey were somewhat older than those who did not, but the difference was minimal.

To contextualize the findings presented in Chapter 4, Tables 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, and 3.8 include descriptive statistics on the demographic characteristics of the study participants.

Table 3.1

Demographic Characteristics of Study Participants- Gender

	n	% of Sample
Male	749	52.6%
Female	674	47.3%

The average age of the respondents was 53.66 years with a range of 25 to 92 years. Age ranges are presented in Table 3.2.

Table 3.2

Demographic Characteristics of Study Participants- Age

Age	Frequency	Percent of Respondents
25 – 30	17	1.2%
31 – 35	98	6.7%
36 – 40	172	11.8%
41 – 45	173	11.8%
46 – 50	153	10.5%
51 – 55	184	12.6%
56 – 60	158	10.8%
61 – 65	187	12.8%
66+	317	21.7%

The average length of service was 11.78 years with a range of 1 to 61 years.

Table 3.3

Demographic Characteristics of Study Participants- Years of Service

Range of Years of Service	Frequency	Percent of Respondents
1 – 5	471	33.2%
6 – 10	325	22.8%
11 – 15	272	19.1%
16 – 20	160	11.2%
21 – 25	40	2.8%
26 – 30	56	3.9%
31 – 35	46	3.2%
36 – 40	32	2.2%
40 +	22	1.5%

Table 3.4

Demographic Characteristics of Study Participants- Rank

	n	% of Sample
Instructor	249	17.5%
Assistant Professor	446	31.3%
Associate Professor	420	29.5%
Professor	308	21.6%

Table 3.5

Demographic Characteristics of Study Participants- Status

	n	% of Sample
Adjunct	363	25.5%
Non Tenure Track	559	39.3%
Tenure Track	112	7.9%
Tenured	389	27.3%

Table 3.6

Demographic Characteristics of Study Participants- Ethnicity

	n	% of Sample
African American	78	5.5%
American Indian	3	.2%
Asian	162	11.4%
Hispanic	51	3.6%
Multiracial	16	1.1%
Pacific Islander	3	.2%
Unknown	58	4.1%
White	1052	73.9%

Table 3.7

Demographic Characteristics of Study Participants- Highest Degree Earned

	n	% of Sample
Bachelor's	81	5.7%
Master's	263	18.5%
Doctorate	1,080	75.8%

Table 3.8:

Demographic Characteristics of Study Participants- Level of Student Taught

	n	% of Sample
Undergrad Only (UN)	571	40.4%
Graduate Only (G)	102	7.2%
Professional Only (P)	141	10.0%
Non-Credit Only (NC)	2	.1%
UN & G	480	33.9%
UN, G & NC	9	.6%
G & P	51	3.6%
UN, G & P	39	2.8%
UN, G & NC	10	.7%
G & NC	3	.2%
UN & P	4	.3%
UN & NC	2	.1%
G, P & NC	1	.1%

Overall, the respondents are primarily white (73.9 percent) and mostly teach undergraduate students or a combination of undergraduate and graduate students. Faculty over 66 years old were better represented in this sample than were faculty in other age ranges. Non-tenured and tenured/tenure-track faculty were equally represented in the sample, whereas adjunct respondents were underrepresented relative to university reports of faculty. That is, the university reported to have a total of 2,942 instructional faculty members during the 2019-2020 academic year (Temple University, 2020). Of the 2942 faculty members reported in the Common Data Set, approximately 46 percent were identified as part-time instructors. Thus, this sample provides a more representative snapshot of attitudes and experiences of full-time faculty than it does for part-time instructors. Consistent with the sample, faculty at the surveyed institution primarily identify as white and the percentage of male vs. female faculty is very similar. Public institutional data on faculty age are unavailable.

Measures

The study examined data gathered through the COVID-19 Faculty Survey; a proprietary instrument designed by the Office of Institutional Research at the university (see Appendix A). The COVID-19 Faculty Survey is a 155-item survey that was administered to all full-time and part-time instructors in June of 2020. The questionnaire is a self-report survey and includes items soliciting level of students taught, useful university-provided communication and resources, pre- and post-COVID-19 educational technology use, pre- and post-COVID-19 pandemic teaching methods, post-COVID-19 assessment changes, ease of educational technology, academic continuity, work/life balance and personal care.

Procedures

All full-time and part-time university instructors were invited to participate in a mixed-method survey to share their experiences with the transition to remote teaching on June 2, 2020. The survey was distributed through an email list which was provide by Human Resources. This project was approved by the Institutional Review Board (IRB). The principal investigators granted me permission to use these survey data and access was approved by the Office of the IRB through an exemption and through the Office of Institutional Research and Assessment.

The Office of Institutional Research and Assessment assisted me in accessing educational preparation, instructor status, and years of employment data for participants. That is, university data verification personnel provided deidentified data. This process allowed us to merge the demographic data with survey responses while maintaining the anonymity of respondents.

CHAPTER 4: DATA ANALYSIS

This chapter presents the results of the data analysis for the study presented in Chapter 3. Section I will discuss several issues that provide context for the data analysis and results. Section II will present the results for each of the three research questions. Descriptive data for the sample were presented in Chapter Three.

Consideration of the Data Set

The first issue concerns the sample size used for the analyses. As shown in the descriptive data presented in Chapter 3, approximately 1,400 instructors returned the survey. Of these, about 1,000 completed enough of the survey to be included in the data analysis. One of the advantages of a sample size this large is that it has enormous power. Although this is beneficial from several perspectives, it also means that almost any inferential analysis that is conducted will produce statistically significant results. Consequently, all analyses that are reported include the appropriate effect size metric. Since a large number of analyses were conducted on the data, emphasis will be placed on those where the effect size is considered at least medium (Cohen, 1988).

A second issue involves the large number of analyses that were conducted. The survey that was sent to instructors contains 155 questions divided into several sections. While descriptive data on all of these questions are presented in the dissertation, I decided to factor analyze the critical set of questions focusing on the instructors' response to the COVID-19 pandemic and to use factor scores as dependent variables for the final two research questions. This significantly reduced the number of analyses and produced a much clearer picture of the results. As is demonstrated below, I also decided to not include descriptive data on any analysis that did not produce significant results.

A final issue involves the way the analyses were approached. Because the study is exploratory, a decision was made to focus on univariate analyses where individual variables are investigated singly. As mentioned above, this has the effect of producing a large number of statistical tests but it was felt that this approach was more appropriate for this research. Some multivariate analyses will be presented where it seemed appropriate to do so.

Analyses for the Research Questions

Hypothesis 1: Faculty will report changes in technology use, teaching methods, and course expectations after the onset of COVID-19 relative to their practices before its onset.

To address technology use, the complete set of responses to questions about the use of technology pre- and post- COVID-19 is presented in Appendix A. The means for each of the questions are presented in Table 4.1, along with the number of respondents who answered, "I don't know what this is." The questions were rated on a 4-point Likert scale where 4 = Very Much and 1 = Never/Rarely.

Paired samples t-tests were computed comparing the mean before and the mean after COVID-19. All of these were statistically significant beyond the .01 level with the exception of ECHO 360 tools and Microsoft Office Suite. The effect sizes were typically in the small to medium range with the exception of video conferencing, which was large (Cohen's d = 1.39). A complete list of the t-test results and Cohen's d for each comparison is presented in Appendix A. As shown in Table 4.1, all of the means increased from before to after COVID-19. As would be expected, the largest change was in video conferencing, which includes the use of Zoom. It is also evident that the

number of instructors that did not know what the technology was decreased in all cases (except Google Drive, which remained the same).

As an initial analysis a multivariate repeated measures ANOVA was computed across all of the technology items. Results of this analysis were statistically significant with a large effects size (Wilk's lambda = .720 p = .000, partial eta squared = .280). Paired samples t-tests were then computed comparing the mean before and the mean after COVID-19 for each of the technology items.

Table 4.1

Descriptive Data on the Use of Technology Pre- and Post- COVID-19

Technology	Mean Before	Mean After	I don't know what this is Before	I don't know what this is after
Canvas quizzes	1.99	2.41	37	22
Canvas discussions	2.08	2.52	30	26
Canvas speed grader and feedback tools	2.75	3.07	51	29
Video conferencing (e.g., Zoom, Webex)	1.86	3.69	28	4
Video conferencing features	1.52	2.72	48	25
VoiceThread	1.19	1.43	226	200
Narrated slides	1.53	1.88	98	87
Echo 360 tools	1.20	1.21	409	373
Ensemble Anthem	1.18	1.27	445	409
Google Drive	2.49	2.65	40	40
Microsoft Office Suite	3.48	3.50	14	11
Screencasts	1.41	1.64	274	231
Polling tools	1.54	1.77	103	83
Self-made audio recordings	1.46	1.69	99	78
Existing audio recordings	1.74	1.80	90	75
Self-made video recordings	1.71	2.18	78	56
Existing video recordings	2.58	2.66	40	28
Adobe Creative Cloud	2.29	2.36	81	73

To address teaching methods, the complete set of responses to questions about teaching methods before and after COVID-19 is presented in Appendix B. These questions used the same 4-point Likert scale described above with the exception that "I

do not know what this is" was not offered as an option. Table 4.2 presents the means for each of the questions pre- and post- COVID-19.

As before, paired samples t-tests were computed comparing the mean before to the mean after COVID-19. All comparisons were significant at beyond the .01 level with most of the effect sizes in the small to medium range. A complete list of the t-test results and Cohen's *d* is presented in Appendix B.

As before, a multivariate repeated measures ANOVA was computed for all of the teaching techniques. This produced a significant result with a large effect size (Wilk's lambda = .753, p = .000, partial eta squared = .247).

Table 4.2

Descriptive Data on the Use of Teaching Methods Before and After COVID-19

Teaching Method	Mean Before	Mean After	Change
Lecture	3.47	3.15	Down
Lab Activities	1.99	1.62	Down
Polls/rapid-response devices	1.46	1.75	Up
Surveys	1.58	1.72	Up
Small group or pair work	3.04	2.46	Down
Discussion	3.42	3.16	Down
Problem solving	3.02	2.76	Down
Case-based activities	2.56	2.39	Down
Reflection activities	2.56	2.49	Down
Peer review/peer critique	2.34	2.17	Down
Experiential/community-based learning	2.15	1.79	Down
Demonstrations	2.52	2.11	Down
Simulation	1.95	1.77	Down

As shown in Table 4.2, most of the teaching methods decreased after COVID-19. The two exceptions were the use of polls/rapid-response devices and surveys. It is interesting to note that small group/pair work and discussion methods were down after COVID-19. Zoom and the learning management platform: Canvas, allow for small group discussion to occur fairly easily.

To address adjustments to expectations, the survey contained the following question about course assessments: "After going online during the spring semester, I did the following with regards to my course assessments (e.g., exams, papers, quizzes, presentations, portfolios." Respondents could choose as many of the options as they wanted. These data are presented in Table 4.3.

As shown in Table 4.3, by far the two most common activities were to become more flexible with due dates and to allow students to submit work in a variety of ways. The least common adjustments were "gave incompletes until students were back on campus" and "using a proctoring solution." Interestingly, 20 percent of respondents made no changes to their assignments.

Table 4.3

Assessments After Going Online

	Frequency	% of Respondents
Made no changes to my assessments	288	20.2%
Lower the stakes on my assessments	250	17.6%
Gave more frequent, but lower-stakes assessments	200	14.0%
Eliminated an assessment and substituted a different type of assessment	390	27.4%
Allowed students to choose from a variety of assessments	160	11.2%
Gave incompletes until students were back on campus	35	2.5%
Used a proctoring solution	54	3.8%
Use Zoom to proctor exams	213	15.0%
Used Canvas quiz features such as random questions	318	22.3%
Had students sign an honor code statement	189	13.3%
Was flexible with due dates	783	55.0%
Allowed students to submit work in a variety of ways	538	37.8%
Allowed students to revise or resubmit work	421	29.6%
Allowed open book/open notes for exams	376	26.4%
Tried a variety of strategies to improve exam integrity	217	15.2%

Hypothesis 2: Age, faculty status, and discipline will predict changes in technology use, teaching methods, and course expectations after the onset of COVID-19 than before its onset.

In terms of moderators of the change in reports from pre-COVID-19 behavior to teaching behaviors after the onset of COVID-19, I explored the relations among these variables because the direction of this relation is not clear. I report the descriptive statistics for responses regarding technology use, teaching methods, and course expectations by categories of age, faculty status/rank, and discipline. These results provide greater context and understanding of faculty experience and reports. After reporting the descriptive statistics, I also explore whether meaningful patterns of relations emerge among the variables.

To address age and technology use, Pearson correlations were computed with age and the respondents' answers to the questions about technology use. These correlations are presented below in Table 4.4. To simplify the presentation, only significant correlations are presented. Positive correlations indicate that younger instructors use the technology more; negative correlations indicate that older instructors use the technology less.

Table 4.4

Correlations of Age with Technology Use

Technology Use	Correlation	Significance
Before COVID-19		
Use canvas speed grader before	-.201	.001
Use Video Conferencing	.103	.001
Use Video conferencing features	.116	.001
Use Narrated slides	.111	.001
Use Google Drive	-.190	.000
Use Polling Tools	-.083	.008
Use self-made audio recordings	.095	.002
Use existing audio recordings	.102	.001
Use self-made video recording	.071	.022
Use Adobe Creative Cloud	-.100	.001
After COVID-19		
Use Canvas discussions after	-.080	.009
Use Canvas Speed grader	-.216	.001
Use video conferencing	-.113	.001
Use video conferencing	-.121	.001
Use ECHO 360	.091	.015
Use Google Drive	-.183	.001
Screencasts	-.134	.001
Use polling tools	-.070	.027
Use existing audio recordings	.065	.040
Use self-made video recordings	-.088	.005
Use Adobe Creative Cloud	-.091	.004

Although there are numerous significant correlations with age, all of these correlations are small. As shown in Table 4.4, there is a tendency for older instructors to use the technology more before COVID-19, whereas younger instructors use these technologies more after COVID-19. Overall, however, the effect of age is minimal.

To address age and teaching methods, Pearson correlations computed with age and the instructor's use of various teaching methods. These correlations are presented in Table 4.5.

Table 4.5

Correlation of Age with Teaching Techniques

Teaching Methods Use	Correlation	Significance
	Before COVID-19	
Polls	-.071	.021
Surveys	-.084	.007
Problem Solving	.075	.014
Case-based activities	.082	.008
	After COVID-19	
Polls	-.108	.001
Surveys	-.099	.001
Problem Solving	.193	.001
Case-based Activities	.121	.001
Experiential learning	.098	.001
Demonstrations	.170	.001
Simulation	.079	.011

As shown in Table 4.5, there are fewer correlations with age and the use of various teaching methods. Also as before, the significant correlations are small.

To address age and assessment activities, the age of instructors who did or did not use the assessment activity was computed and compared through separate samples *t*-tests. There was only one significant difference: older instructors checked "Made no changes to my assessments" more than younger instructors. The difference was significant at the .01 level with a medium effect size (Cohen's d = .38).

To address faculty status and technology use, instructor status was divided into four groups: adjunct, non-tenure track faculty, tenure-track faculty without tenure, and tenure-track faculty with tenure. The ratings of technology use both before and after COVID-19 by instructor status were compared through a four group discriminant function analyses. The results for the pre-COVID and post-COVID ratings were basically the same when comparing the four groups, so only the results from the post-COVID ratings will be presented. The ratings for technology use produced one

significant function (Wilks' lambda = .707) that accounted for 57 percent of the variance. The group centroid table is presented in Table 4.6.

Table 4.6

Group Centroid Table for Technology Use

Group	Group Centroid Metric
Adjunct	.734
Non-Tenure Track	-.444
Tenure Track	-.131
Tenured	-.059

As shown in Table 4.6, the significant function discriminates between adjuncts and full-time faculty. There were three variables that loaded on the significant function: Microsoft office suite, existing audio recordings and existing video recordings. The means for these three aspects of technology are presented in Table 4.7.

Table 4.7

Means for Technology Use by Instructor Status

	Adjuncts	Non-Tenure Track	Tenure Track	Tenured
Microsoft Office Suite	3.65	3.25	3.30	3.15
Existing audio recordings	2.18	1.71	1.63	1.70
Existing video Recordings	2.81	2.56	2.49	2.44

As shown in Table 4.7, adjuncts make greater use of what could be considered less sophisticated technology.

To address faculty status and teaching methods, a similar four group discriminant function analysis was conducted for teaching methods. This analysis again produced one statistically significant function (Wilks' Lambda = .805) that accounted for 52.7 percent of the variance. Table 4.8 presents the group centroid.

Table 4.8

Group Centroid Table for Teach Methods

Group	Group Centroid Metric
Adjunct	.256
Non-Tenure Track	.254
Tenure Track	-.247
Tenured	-.433

As shown in Table 4.8, the function divides the respondents into two groups: adjuncts and non-tenure track faculty versus tenure track and tenured faculty. There were five variables that loaded on the significant function: case-based activities, small group work, demonstrations, simulations, and lecturing. The means for these variables are presented in Table 4.9.

Table 4.9

Means for Teaching Methods Use by Instructor Status

	Adjuncts	Non-Tenure Track	Tenure Track	Tenured
Case-Based Activities	2.48	2.61	2.05	2.17
Small Group Work	2.43	2.67	2.25	2.20
Demonstrations	2.29	2.31	1.88	1.82
Simulations	1.83	1.91	1.32	1.41
Lecturing	2.88	3.12	3.45	3.56

As shown in Table 4.9, adjuncts and non-tenure track faculty use the first four activities in Table 4.9 while tenure-track and tenured faculty more typically use lectures.

To address faculty status and assessments, the four groups were compared on the use of various assessments through chi squares. There were six types of assessments where significant differences occurred. Table 4.10 presents the percentage of each

group using the assessment as well as the chi square, its significance level and Cramer's *V*, which is the measure of effect size.

Table 4.10

Assessments by Instructor Status

Assessment	% Adjuncts	% Non-Tenure Track	% Tenure Track	% Tenured	Chi Square	Significance	Cramer's *V*
Allowed students to choose from a variety of assessments	10.2%	8.9%	11.6%	15.4%	10.19	.017	.085
Used a proctoring solution	1.4%	6.4%	4.5%	2.1%	19.88	.001	.118
Used Zoom to proctor	9.4%	19.5%	12.5%	14.4%	18.60	.001	.114
Used Canvas quiz features	19.8%	29.3%	19.6%	15.4%	28.28	.001	.141
Allowed students to submit work in a variety of ways	45.7%	36.0%	30.3%	35.2%	14.26	.003	.100
Allowed students to revise work	37.3%	28.1%	25.0%	25.4%	16.32	.001	.108

As shown in Table 4.10, adjunct instructors provided more leniency to students by allowing students to revise work, submit work in a variety of ways, and were less likely to use proctoring. Non-tenure track instructors were more likely to use various proctoring methods and were least likely to allow students to choose from a variety of assignments.

For the analyses comparing academic disciplines the respondents were divided into two groups: STEM related disciplines (e.g., Math, Physics, Biology, Chemistry, Engineering) versus all of others.

To address academic disciplines and technology use, separate samples *t*-tests were used to compare technology use before and after COVID-19. Only differences that were less than the .01 level were considered meaningful. There were four differences that were found. In all four cases the pattern was identical both before and after COVID-19. The means are presented in Table 4.11.

Table 4.11

Technology Use Pre- and Post- COVID-19 by Academic Discipline

	Before COVID-19		After COVID-19	
	STEM	Non-STEM	STEM	Non-STEM
Canvas quizzes	2.17	1.96	2.82	2.35
Canvas discussions	1.71	2.13	2.18	2.57
Existing audio recordings	1.33	1.80	1.46	1.85
Existing video recordings	2.11	2.63	2.35	2.71

As shown in Table 4.11, instructors in STEM disciplines use Canvas quizzes more, but use less of the other technologies.

The address teaching methods and academic disciplines, separate samples *t*-tests were computed comparing STEM to non-STEM disciplines. There were 10 comparisons that were significant beyond the .01 level. Also as before, the pattern was identical both before and after COVID-19.

Table 4.12

Teaching Practices Pre- and Post- COVID-19 by Academic Discipline

	Before COVID-19		After COVID-19	
	STEM	Non-STEM	STEM	Non-STEM
Lectures	3.73	3.43	3.56	3.09
Lab activities	2.60	1.93	2.04	1.56
Small Group	2.78	3.08	2.37	2.47
Discussion	2.99	3.49	2.71	3.23
Problem Solving	3.33	2.98	3.12	2.71
Case-based Activities	2.16	2.62	2.12	2.43
Reflection	1.94	2.66	1.81	2.60
Peer Review	1.87	2.42	1.78	2.23
Experiential learning	1.89	2.19	1.64	1.81
Simulation	2.17	1.81	2.04	1.73

As shown in Table 4.12, instructors in STEM disciplines more typically use lectures, lab activities, problem solving, and simulations as compared to non-STEM instructors. Non-STEM instructors use more small group work, discussion, case-based activities, reflection, peer review, and experiential learning.

To address assessment and teaching methods, Chi squares were used to compare STEM instructors to non-STEM instructors in their use of assessments. There were six assessments where the two groups differed. These results are presented in Table 4.13.

Table 4.13

Assessments Used by STEM and Non-STEM Instructors

Activity	% STEM	% Non-STEM	Chi Square	Significance	Cramer's V
Eliminated an assessment	20.1%	28.5%	5.66	.017	.063
Allowed students to choose assessments	4.3%	12.3%	10.07	.002	.084
Use Zoom to proctor exams	30.4%	12.7%	39.72	.001	.167
Used Canvas quiz features	40.2%	19.7%	38.89	.001	.165
Students sign an honor code	26.1%	11.4%	30.09	.001	.145
Allowed open book exams	37.5%	24.8%	13.34	.001	.097

As shown in Table 4.13 STEM instructors were less likely to eliminate an assessment or to allow students to choose assessments. By contrast, they were more likely to use technology to proctor exams but allowed exams to be open book.

Hypothesis 3: Gender, faculty status/rank, and age will predict challenges in maintaining work-life balance. I examine faculty gender, status/rank, and age as predictors of ability to maintain work-life balance. Item 17 in the survey asked instructors to respond to this question: "After [Institution] transitioned to remote work and instruction, how easy or difficult were each of the following"? Issues that were listed include managing time, balancing family, household and work responsibilities,

and several others. It is important to note that faculty rank does not equate to faculty status. Regardless of rank, faculty can fit into any of the status categories. For example, an adjunct instructor may have a rank of full professor, where a tenured faculty member may be an associate professor. A complete list of the responses to this question is presented in Table 4.14.

As shown in Table 4.14, instructors reported having the most amount of difficulty balancing family, household, and work responsibilities, managing time, and managing stress after the transition to remote learning occurred. Overall, instructors reported having the least amount of difficulty having reliable access to a functioning computer or similar device, having the necessary computer skills needed to teach remotely, and having reliable access to internet.

Table 4.14

Descriptive Data for Various Issues Following Transition to Remote Work and Instruction

	Very Easy (4)	Somewhat easy (3)	Somewhat difficult (2)	Very difficult (1)	Not Applicable	Mean
Managing time	171	280	343	221	3	2.40
Balancing family, household, and work responsibilities	168	230	319	279	20	2.29
Having reliable access to the internet	518	318	143	30	3	3.31
Having reliable access to a functioning computer, laptop, or other similar device	633	274	92	17	2	3.50
Having computer skills needed for online teaching	523	327	140	21	8	3.34
Finding a quiet space for completing work	476	307	151	77	6	3.17
Adjusting to working remotely	301	361	255	88	8	2.87
Communicating with friends and/or family	324	382	223	71	14	2.96
Communicating with colleagues	268	411	268	60	12	2.88
Taking care of my physical and mental health	198	332	343	133	11	2.59
Managing my stress level	175	298	381	152	10	2.49
Taking care of the health needs of others in my family or household	183	347	288	106	90	2.66

To simplify the remaining analyses for research question # 3 a principal components analysis followed by a varimax rotation was conducted on the questions presented in Table 4.14. This analysis produced two factors with eigenvalues over one, which accounted for 62.5 percent of the variance. The rotated factor matrix is presented in Table 4.15.

Table 4.15

Rotated Factor Matrix

Question	Factor I	Factor II
Taking care of my physical and mental health	*.849*	*.151*
Managing my stress level	*.846*	*.141*
Balancing family, household, and work responsibilities	*.808*	*.174*
Managing time	*.785*	*.133*
Taking care of the health needs of other in my family or household	*.784*	*.207*
Communicating with colleagues	*.731*	*.235*
Adjusting to working remotely	*.659*	*.377*
Communicating with friends and family	*.655*	*.174*
Finding a quiet space for completing work	*.526*	*.378*
Having reliable access to a functioning computer, laptop, or other device	.129	.858
Having reliable access to the internet	.225	.795
Having computer skills need for online teaching	.162	.653

As shown in Table 4.15 the two-factor solution is fairly clear: Factor I is psychologically based issues, whereas Factor II is technology-related issues. Factor scores were computed on the two factors and were then converted to T scores (mean of 50 and standard deviation of 10) for ease of interpretation. The higher these scores, the easier the issue was for the respondent.

Hypothesis 3a: I predict that women will report greater challenges in maintaining work-life balance. Based on the extant literature, I hypothesize that women will report greater challenges in maintaining work-life balance due to increased domestic responsibilities. To test this hypothesis, Factor scores were computed for

males and females and compared through separate sample's *t*-tests. These results are presented in Table 4.16.

Table 4.16

Comparison of Males and Females on the Factors

	Mean and (Standard deviation) for Males	Mean and (Standard deviation) for females	*t*-test	Significance	Cohen's *d*
Psychological	51.58 (10.22)	48.24 (9.63)	4.967	.001	.337
Technology	49.90 (10.02)	49.52 (10.14)	.558	NS	-

A shown in Table 4.16, there is a significant difference in psychological issues with men rating these issues as easier than women. There is no evidence of a difference in technology-related issues.

Hypothesis 3b: I hypothesize that regardless of gender, faculty status will predict challenges in maintaining work-life balance, such that faculty who are not tenured or tenure eligible will report greater work-life balance difficulties than tenured faculty. I hypothesize that faculty members who are pre-tenure or not tenure eligible will report greater challenges to maintaining work-life balance. To test this hypothesis, two, one-way ANOVAs were computed comparing the four status levels on psychological and technology-related issues. The means and standard deviations are presented in Table 4.17.

Table 4.17

Means and Standard Deviations for Psychological and Technology-Related Issues by Faculty Status

	Adjuncts	Non-Tenure Track	Tenure Track	Tenured
Psychological	52.62 (9.69)	49.41 (9.77)	44.08 (9.43)	49.84 (10.25)
Technology	49.87 (9.65)	49.98 (9.65)	52.81 (9.32)	49.34 (9.34)

The ANOVA for psychologically related issues was significant (F = 13.505, p = .001, partial eta squared = .045); the technology-related issues means did not differ (F = 2.13, p = .071). The post-hoc Tukey test showed that all of the comparisons for psychologically related issues were significant except the comparison of Non-Tenure Track and Tenured. As shown in Table 4.18, the group with the greatest degree of psychological issues were tenure-track faculty; the group with the least was adjuncts.

Additionally, two, one-way ANOVAs were computed comparing the four levels of faculty rank on psychological and technology related issues. The means and standard deviations are presented in Table 4.18.

Table 4.18

Means and Standard Deviations for Psychological and Technology-Related Issues by Faculty Rank

	Instructor	Assistant Professor	Associate Professor	Full Professor
Psychological	52.18 (9.51)	48.55 (10.40)	49.03 (9.97)	51.26 (9.83)
Technology	50.19 (10.01)	50.46 (9.96)	49.17 (10.29)	49.05 (10.01)

As before, the ANOVA for psychologically related issues was significant (F = 6.27, p = .001, partial eta squared = .021), whereas the technology-related issues means did not differ (F = 1.13, p = .336). The post-hoc Tukey test showed that there are

essentially two divisions that differ: Instructor and Full-Professor versus Assistant and Associate Professor. As shown in Table 4.18, the group with the greatest degree of psychological issues were assistant professors; the group with the least were instructors.

Hypothesis 3c: I hypothesize that age will predict reports of work-life balance challenges. I predict that faculty under the age of 45 will report greater challenges in maintaining work-life balance than those over the age of 45. This hypothesis is based on research that suggests parents of school-aged children, who are more likely to be under the age of 45, have had the most difficulty balancing time between domestic and parenting responsibilities and work obligations. To test this hypothesis, the sample was divided into two groups: 45 and below and 46 and above. The means and standard deviations for psychological and technology-related issues are presented in Table 4.19.

Table 4.19

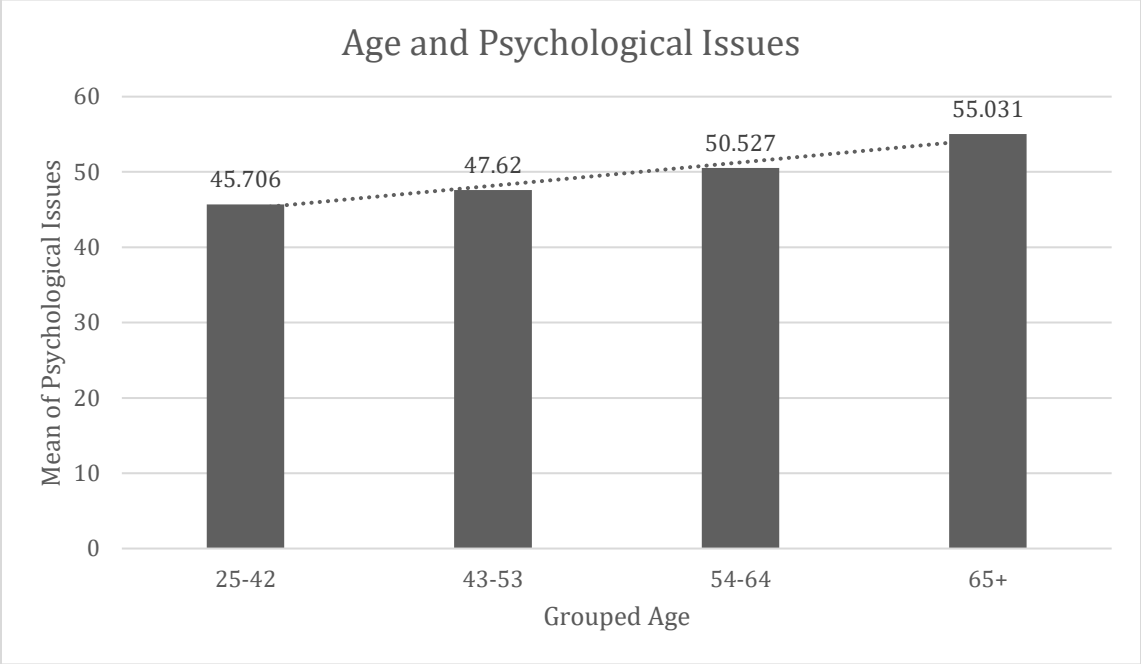
Comparison of Age Groups on the Factors

	Mean and (Standard deviation) for 45 and Younger	Mean and (Standard deviation) for 46 and Older	*t*-test	Significance	Cohen's *d*
Psychological	45.75 (9.38)	51.70 (9.85)	8.19	.000	.61
Technology	(50.72 (10.77)	49.32 (9.77)	2.33	NS	-

As shown in Table 4.19, there is a significant difference for psychologically related issues with younger respondents reporting greater levels of issues. The effect is medium to large. The data were examined for any evidence of a non-linear relationship. As one check for a non-linear relationship, the age distribution was divided into

quartiles. A plot of these data for psychological issues is presented in Figure 1. Grouped age is defined by age ranges 1: 25-42 years; 2: 43-53 years; 3: 54-64 years; 4:65+ years.

Figure 1. Age and Psychological Issues



Hypothesis 3d: I predict that women with contingent faculty status will report the greatest challenges in maintaining work-life balance relative to other faculty groups.

To test this hypothesis, I tested for a significant interaction between faculty status and gender as a predictor of work-life balance. Results showed no evidence of significant interactions between gender, faculty status, and technology. There was a main effect shown for both gender and faculty status as shown in Tables 4.20 and 4.21 along with Figure 2 below.

Table 4.20

Means and Standard Deviations for Psychologically Related Issues by Instructor Status and Gender

	Mean	Standard Deviation	*N*
Adjunct:			
Male	53.64	9.99	124
Female	51.44	9.24	106
Non-Tenure Track:			
Male	50.72	10.05	160
Female	48.21	9.37	173
Tenure-Track:			
Male	47.29	9.53	25
Female	42.08	9.44	39
Tenured:			
Male	51.53	10.42	148
Female	47.30	9.50	98

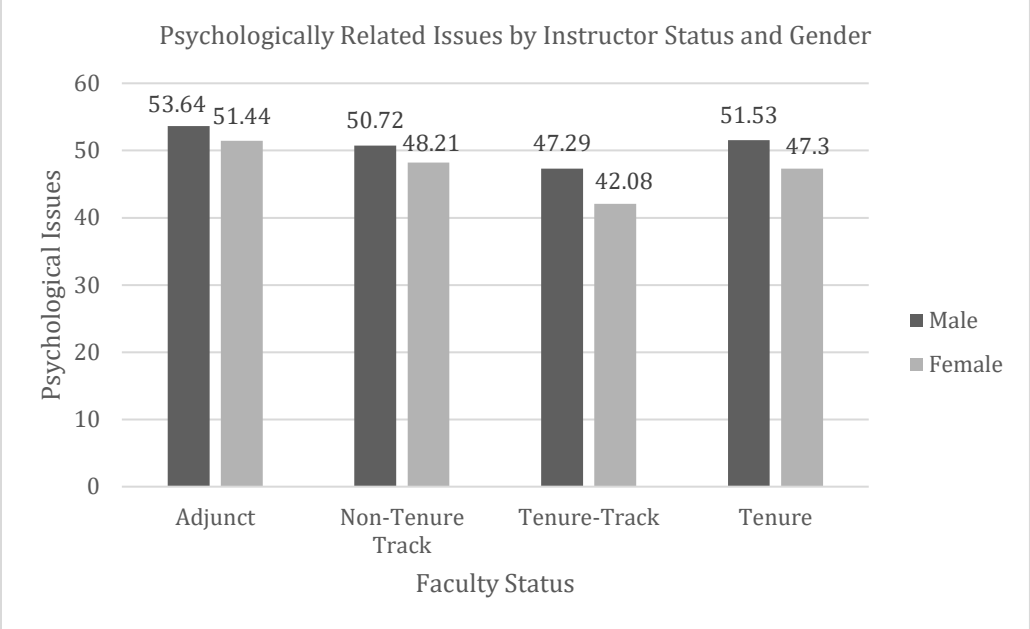
Table 4.21

ANOVA Summary Table

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Status	3383.431	3	1127.810	11.848	<.001	.039
Gender	1796.984	1	1796.984	18.878	<.001	.021
Status * Gender	220.595	3	73.532	.772	.510	.003
Error	82337.775	865	95.188			

As shown in Table 4.21 and Figure 2, there is a significant main effect for gender and status, but the interaction is not significant.

Figure 2. Psychological Issues, Status, and Gender



As we have seen before, it is not the contingent faculty with the most psychologically related issues; it is the pre-tenure faculty in general, and the female, pre-tenure faculty in particular. See Table 4.22 for the results of these comparisons by status.

Table 4.22

Tukey Results for the Main Effect for Status

Status	Mean	1	2	3	4
Tenure-Track- Pre-Tenure (1)	44.66	-			
Tenured (2)	49.42	.001	-		
Non-Tenure Track (3)	49.46	.001	ns	-	
Adjunct (4)	52.54	.001	.011	.001	-

CHAPTER 5: DISCUSSION

This study examined the move to remote teaching from a faculty perspective a few months after the onset of the COVID-19 pandemic. Although research is still emerging and there are often daily changes in the response measures to the COVID-19 pandemic, themes have already been presented in current research to support the need to explore the impact the swift change to remote learning has had on instructors at institutions of higher education. Previous research has established the need to identify stressors when responding to crisis, especially for vulnerable instructor categories and women working in higher education. As discussed in the Chapter 2, there remains a lack of focused attention on specific influences on non-tenured instructors and women working in higher education within the context of pandemic response.

The current study investigated the influence of the COVID-19 pandemic on specific faculty ranks and genders in higher education. This study contributes to the current body of research on institutional responses to the COVID-19 pandemic and crises by examining the psychological and technological impact of the transition to online learning during the COVID-19 pandemic, specifically examining factors such as gender and faculty rank. Because the pandemic is ongoing and responses change at times daily, this study explores the effects of the pandemic to provide valuable information to administrators making necessary decisions regarding teaching modalities, faculty trainings, and overall faculty supports to provide the best possible instruction for students and support and nurture faculty growth and retention.

This chapter summarizes and discusses the main findings of the current study. It also addresses limitations of the research, and discusses implications,

recommendations, and directions for future research. The subsequent discussion is an interpretation of the findings to answer the research questions presented in Chapter 1.

Summary of Findings

Full- and Part-time faculty from domestic campuses at a large, mid-Atlantic institution of higher education in the United States were surveyed to investigate the instructional changes and challenges faced during the COVID-19 pandemic. Secondary analysis of data provided by the Office of Institutional Research and the Center for the Advancement of Teaching was used for this study. For the purpose of this study, I developed the following hypotheses: (1) faculty would report changes in technology use, teaching methods, and course expectations after the onset of COVID-19 relative to their practices before its onset; (2) age, faculty status, and discipline would predict changes in technology use, teaching methods, and course expectations after the onset of COVID-19 than before its onset; and, (3) gender, faculty status/rank, and age would predict challenges in maintaining work-life balance.

Findings revealed that all faculty showed an increased use of technology across all platforms with the most significant increase in video conferencing technology such as Zoom and WebEx. Most teaching methods decreased in use for all faculty apart from polls/rapid-response devices and surveys. Small group work or pair work saw the largest decrease in use. Additionally, most respondents made some change to their assessments after going online. Over 20 percent of faculty made no changes to assignments and the largest percentage of respondents (55 percent) allowed flexibility with their due dates. The results from these analyses confirm the original hypothesis that faculty would report changes in technology use, teaching methods, and course expectations after the onset of COVID-19 relative to their practices before its onset.

Results also confirmed the original hypothesis that age, faculty status, and discipline would predict changes in technology use, teaching methods, and course expectations after the onset of COVID-19 than before its onset. It should be noted that while there are significant correlations with age and changes to technology use and teaching methods, the effect of age is small. For assessment activities, results show that older instructors indicated they made no changes to assessment relative to younger instructors. The difference between these groups was significant (.01) and had a medium effective size (Cohen's d = .38).

Adjunct instructors make greater use of what could be considered less sophisticated technology (Microsoft Office Suite, existing audio recordings, and existing video recordings). Adjunct and non-tenure track faculty are more likely to use case-based activities, small group activities, demonstrations, and simulations, whereas tenure-track and tenured faculty more typically used lectures as teaching methods. Results showed that instructors in STEM disciplines use Canvas quizzes more but use less of other technologies such as discussion boards and existing audio and video recordings and STEM instructors more typically use lectures, lab activities, problem solving, and simulations as compared to non-STEM instructors. Non-STEM instructors use more small group work, discussion, case-cased activities, reflection, peer review, and experiential learning and were more likely to eliminate an assignment and/or allow students to choose assessments.

Gender, faculty status/rank, and age also predicted challenges in maintaining work-life balance. A principal components analysis using a varimax rotation was conducted on the questions associated with work-life balance issues following the transition to remote work and instruction. This analysis produced two factors:

psychologically related issues and technology-related issues. Consistent with the hypothesis, male faculty rated psychological issues associated with the pandemic such as managing stress levels, balancing family, household, and work responsibilities, and managing time as easier than female faculty. In terms of faculty status, a post-hoc Tukey test showed that there are essentially two divisions of faculty that differ: Instructor and Full-Professor versus Assistant and Associate Professor. Assistant Professors (tenure-track) reported the greatest degree of psychological issues and instructors (adjuncts) reported the least. Older faculty indicated psychological issues were easier to handle than faculty between the ages of 25 and 42. Female, pre-tenure faculty indicated the greatest challenge with psychologically related issues associated with the move to online learning.

Discussion of Findings

Changes in Technology

As mentioned in the summary of findings section, changes in technology use pre to post COVID-19 were seen across all faculty regardless of rank, status, discipline, or gender. These results are not surprising as institutions of higher education relied heavily on technology to continue academic operations along with institutional operations while the world went remote. As expected, the largest increase in technology use was seen in video conferencing, which includes the use of Zoom. Zoom was the video conferencing technology used most by instructors at this institution and was pushed out heavily upon the transition to remote learning.

It is interesting to note the technology that faculty most often reported not knowing existed both before and after COVID-19 including Ensemble Anthem, Echo 360 tools, Screencasts, and Voice Thread. In all cases, more instructors reported not

knowing specific technology before COVID-19 than post transition to online instruction except Google Drive, which remained at the same knowledge level. The institution can use this information to expand information sessions and trainings on all technologies available to instructors if the technologies are still deemed to be necessary and beneficial.

This study looked at the relation between age and technology use. Although there are numerous significant correlations with age, all are small. Younger faculty were more likely to use multimedia technology prior to COVID-19 than older faculty, whereas older faculty were more likely to use less sophisticated technologies that may be taught more frequently such as Canvas speed grader, Google Drive, and Adobe Creative Cloud prior to COVID-19. Overall, results showed a tendency for older instructors to use technology more before COVID-19, whereas younger faculty used these technologies more after COVID-19.

Adjunct faculty were more likely to use what could be considered less sophisticated technology. As previous research suggests adjunct faculty are often managing multiple and sometimes conflicting obligations (Morris, 2016). Learning new and more time-consuming technologies may not be realistic or easily obtainable. Gaining commitment beyond the expectations of teaching courses may be difficult and asking adjunct instructors to attend training outside of their typical teaching times may be impossible and runs the risk of exploitation for unpaid labor (DeLotell & Cates, 2016). If specific technologies are required to teach a course, the higher education institution may need to provide extra support services to train and help adjunct instructors when convenient to their schedules or be compensated for attending university trainings.

Overall, instructors reported an increase in technology use from pre-COVID to post-COVID. STEM faculty in particular were more likely to use Canvas quizzes but less likely to use Canvas discussions or existing audio and video recordings. These results are not necessarily surprising as STEM fields more typically rely on traditional assessments such as quizzes and tests and rely less on discussions. The university may consider offering additional training and resources to STEM faculty on how to prepare audio and video recordings to assist students in their learning of content.

The final analyses reporting on technology examined technology-related issues including having reliable access to a functioning technology, reliable access to the internet, and having the necessary computer skills needed for online teaching. I found no evidence of differences in technology-related issues between men and women, faculty status, and age. This pattern of results is comforting news as it shows regardless of who the faculty member is, they do not report a significant difference in having the access to technology and internet or the necessary skills to conduct remote learning in the event of another swift transition.

Changes in Teaching Methods

Findings showed that faculty across gender, rank, status, and discipline overall showed a decrease in the teaching methods they used pre vs. post COVID-19. The two exceptions were polls/rapid-response devices and surveys which both saw an increase in use after the pivot to remote learning. While I predicted that there would be a change in the teaching methods before and after COVID-19, I did not expect so many methods to decrease. The timing of the survey is important to remember when reflecting on these results. Instructors were dealing with not only the pressure of moving their planned curriculum to an online format in a short amount of time, but also were

dealing with the unpredictable and what some might consider scary times of the beginning of the pandemic.

Age, faculty status, and discipline predicted changes in teaching methods. Age was a modest predictor in changes in teaching methods, as the significant correlations were small. After COVID-19, older faculty were more likely to use polls and surveys in their courses. Younger faculty were more likely to use problem solving, case-based activities, experiential learning, and demonstrations. These results are less interesting because while the correlations were significant, they were small.

By contrast, faculty status is an interesting indicator of teaching methods. Results showed that adjuncts and non-tenure track faculty were more likely to use case-based activities, small group work, demonstrations and simulations and tenure-track and tenured faculty more typically use lectures as teaching methods. There could be several reasons for this including the types of courses these instructors are teaching (graduate vs. undergraduate), comfort level with the materials being taught, and how instructors were taught to teach within their disciplines. This pattern could be an area for future research and might be interesting to look at after the pandemic ends to see if these trends still exist.

Findings show that faculty discipline was also an indicator of teaching methods pre- and post-COVID-19. Faculty in STEM disciplines more typically use lectures, labs activities, problem solving, and simulations as compared to non-STEM instructors. These results were not surprising and were expected. Non-STEM instructors use more small group work, discussion, case-based activities, reflection, peer review, and experiential learning. There was a decrease in all teaching methods for STEM instructors in every significant teaching method. These results lead to the question of

what faculty were doing in place of the teaching methods they used prior to COVID-19. Additional analyses and studies may be warranted.

This study also found that faculty were more likely to be flexible with due dates and to allow students to submit work in a variety of ways. Surprisingly, 20 percent of respondents did not make changes to their assignments after transitioning to remote learning and were more likely to be older faculty than younger faculty. These instructors may have already had assessments built into the online learning management platform, Canvas, such as quizzes, tests, and final paper submissions or have an attitude that students should be held to the same rigid standards despite the circumstances surrounding the pandemic. Faculty may have also been too overwhelmed with their own pandemic stressors to allow for an increase in flexibility with alternative assignments, due dates, allow for revisions of work, and allow students to turn in assignments in a variety methods. It is interesting to note that 55 percent of faculty reported allowing flexibility with due dates for students. Students and faculty alike were going through similar stressors from the pandemic such as increased homelife responsibilities, concerns over safety and health, sicknesses, and overall anxiety.

Work-Life Balance

Overall, instructors reported having the most amount of difficulty balancing family, household, and work responsibilities, managing time, and managing stress after the transition to remote learning. Gender, faculty status/rank, and age predicted challenges in maintaining psychological aspects of work-life balance. Consistent with the hypothesis, male faculty rated psychological issues associated with the pandemic such as managing stress levels, balancing family, household, and work responsibilities,

and managing time as easier than female faculty. Specifically, female, pre-tenure faculty indicated the most difficulty with psychologically related issues associated with the move to online learning.

As discussed in Chapter 2, prior to COVID-19 gender disparities were already present across industries in the United States (Bichsel & McChesney, 2017). Previous research has shown that women working in all industries have needed to take on more domestic responsibilities including an increase in childcare prior to and since the start of the pandemic (Adams-Prassl, 2020; Heggeness, 2020; Office for National Statistics, 2020). Academia has not been immune to the conflicting career and domestic pressures during COVID-19. Submitted and published research articles by women decreased since the start of the pandemic (Fazackerley, 2020; Oleschuk, 2020). Female faculty were also found to feel a greater need to support students' general emotional well-being and were less likely to prioritize their professional work over domestic obligations (Gorska et al., 2021). Because of this literature, I specifically chose to investigate gender as a predictor of psychological stress during the COVID-19 pandemic.

Consistent with previous research, this study found that women reported having a more difficult time with psychologically based issues than their male counterparts. After completing the initial analysis to answer this research question, I rank ordered the psychologically based issues from the most to the least significant (all listed are statistically significant at the .01 level and have at least a medium effect size) and female instructors reported each issue to be more problematic than male instructors.

Table 5.1

Statistically Significant Psychological Issues Rank Ordered from Most Difficult to Least

Rank	Issue
1	Managing time
2	Balancing family, household, and work responsibilities
3	Managing my stress level
4	Taking care of the health needs of others in my family or household
5	Taking care of my physical and mental health needs
6	Communicating with friends and family
7	Finding a quiet space for completing work

Managing time, balancing family, household, and work responsibilities, and managing stress levels were identified as the hardest activities to complete during the pandemic and women reported a more difficult time with these issues than male faculty. This pattern of results is not surprising as we know from previous research that the pandemic has forced both men and women to take on more domestic, especially parental, and childcare responsibilities, than prior to the pandemic (Heggeness, 2020). It also is not surprising that results from this study found that women indicated having increased difficulties in these issues as previous research has shown women are disproportionately taking on more and more of domestic responsibilities (Adams-Prassl, 2020; Office for National Statistics, 2020). These findings showcase the extra pressures women faculty faced during the pandemic. Additional resources and support systems for female faculty should be identified if retaining and protecting a female workforce is valued.

In addition to gender, faculty status also predicted challenges in maintaining work-life balance. Faculty with adjunct status reported having the least difficulty in managing the psychological stressors mentioned above and tenure-track Assistant

Professors faculty reported the greatest degree of psychological issues. I was a bit surprised by the results indicating adjunct instructors presented the least difficulty managing psychological stressors as I originally hypothesized adjuncts would report some of the greatest challenges to maintaining work-life balance based on the assumption that they are managing multiple jobs and responsibilities, but the responses to this survey suggest otherwise. One possible explanation for this pattern may be commitment: Previous research indicates that adjunct faculty often show less commitment to an institution, and therefore, their work as an instructor may have become less of a priority during the pandemic (DeLotell & Cates, 2016).

It was hypothesized that tenure-track faculty would find it more difficult to manage stressors than tenured faculty due to the added pressures associated with impending tenure review. This prediction is consistent with previous research (Gmelch et al., 1986; Rosser, 2004) indicating that tenure-track faculty often experience higher levels of stress. These studies were conducted pre-COVID-19 and we know that post-COVID-19 stressors have only increased (Oleschuk, 2020; VanLeeuwen et al., 2021). Some institutions of higher education have extended the tenure clock by one year to allow for additional time to meet necessary criteria for successful tenure review (Olechuk, 2020). Additional consideration may be given to tenure-track faculty including increasing support for faculty through mentorship, reduced teaching loads or reduced new teaching preparations, and providing graduate student support to assist with teaching and research responsibilities.

Age was also a predictor of work-life balance challenges. Older faculty members (age 65+) had an easier time with psychologically based issues than younger faculty. Faculty aged 25-42 and 43-53 indicated the most difficulty with these issues, which is

consistent with previous research. Faculty in the age ranges of 25-42 and 43-53 are more likely to have school-aged children and the increased pressures of homeschooling and additional childcare responsibilities during COVID-19 closures; therefore, it is logical that they indicated the highest difficulty with psychological issues post COVID-19. Institutions of higher education can use this information to help provide more flexibility in work schedules whenever possible and support faculty with resources when appropriate such as tips for helping children learn at home.

Limitations

Interpretation of the findings presented in the current study should consider several limitations of this research. Limitations discussed in the following section include the timing of the study and external validity.

Timing of the Study

The current study is a snapshot taken during a cataclysmic event and was conducted in June 2020, which was soon after the onset of the COVID-19 pandemic and shortly after the Spring 2020 semester that required immediate and rapid educational changes. Just as faculty views have changed since the beginning of the pandemic, it is possible that their views have changed during year two and now into year three of the pandemic and potentially will change again when the pandemic subsides. Because these data were collected at the beginning of lock-down when most industries were closed, it is likely this survey is an underestimate of the stressors related to work-life balance. Once faculty were expected to return to in-person teaching, the pressures of work-life balance may have increased depending on availability of in-person K-12 learning and childcare, and other life obligations. It is also important to note that the survey data were collected prior to the release of any vaccinations or efficacious

treatment options for COVID-19. These changes in the medical innovations are likely also influential in employees' stress. Further, work-life balance may not be as difficult during this current moment in time due to the return to in-person K-12 education and childcare centers reopening. Additional research is warranted to examine these relations over time.

External Validity

The current study was conducted at a single higher education institution located in an urban, northeastern geographical region of the United States. The participating institution reflects a distinct institutional classification (public, urban, research 1 university) and is not representative of all institutions of higher education both nationally and internationally that were all affected by the COVID-19 pandemic. Specifically in urban centers, the rate of infection of COVID-19 was disproportionately higher, which increased the concern and likelihood of becoming infected with the virus. Given this limitation, the study lacks external validity, which limits the generalizability of the findings.

Implications, Recommendations, and Directions for Future Research

Additional studies should be conducted as we enter year three of the pandemic. The current study provides a snapshot in time at the beginning of the pandemic and was completed the summer following the emergency transition of online learning in response to the COVID-19 crisis. It would be important to see how attitudes have changed from the onset of the pandemic until now. The survey was also distributed and collected before vaccines were available and successful treatments were studied and known. Stay-at-home orders were in place and the institution was operating with only essential personnel on campus. Attitudes may have changed between the summer

of 2020 to now, as we enter the third year of the pandemic. Faculty may feel more comfortable with online teaching techniques and technologies but may also be feeling an increased level of burnout and may be struggling with the psychological aspects of the pandemic, especially continuing to balance work and life pressures.

Based on findings, support systems for work-life balance should be examined through additional studies and potentially increased, especially for tenure-track faculty. As mentioned previously, tenure-track faculty are under additional pressures due to the impending tenure review process. Some institutions have extended the tenure clock by one year during the pandemic, which provides faculty with additional time to produce compelling scholarly output for their review. Universities may also consider providing additional supports for tenure-track faculty going up for review such as providing graduate student support for teaching and research responsibilities.

The current study does not specifically look at faculty race. Future research may wish to explore the impact of COVID-19 on faculty from minoritized groups to see if there are specific struggles that have disproportionally affected them and what institutional supports can be put in place to address potential challenges. In addition, graduate students employed as teaching assistants should be surveyed to understand their experiences with teaching during the COVID-19 pandemic. They may present a unique set of struggles and insights into additional supports needed for this vulnerable population.

This survey examines faculty perspectives, but the pandemic has affected everyone. Additional research on constituency groups outside of faculty should be examined to determine overall institutional response to crises. Institutions of higher education have many employees that affect the function of the institution and the

continuation of operations. For example, employees who directly support the onboarding of faculty, employees who provide technical support, and employees who provide instructional design support should specifically be surveyed to provide their perspective of the transition to online learning. Findings on what went well and what did not could have the potential to significantly improve disaster response going forward.

Conclusion

Institutional response to crises such as the COVID-19 pandemic are necessary realities for colleges and universities. It is useful to consider instructor perspectives when evaluating the transition to online learning during the COVID-19 pandemic to not only learn what to do going forward during the current pandemic but to also prepare for future catastrophic events. While the COVID-19 pandemic may not last forever, the effects of the pandemic on institutions of higher education could be permanent. The influence of the pandemic also highlighted some vulnerabilities and areas of needed support within specific categories of faculty (women, contingent faculty, etc.), which should continue to be explored and better addressed.

The results of the present study suggest that faculty have overall experienced a change in technology use from their previous patterns before the onset of the COVID-19 pandemic and after its onset. Faculty reported the greatest increase in use of Zoom and WebEx technologies. Age, faculty status, and discipline were also predictors of changes in technology use. Adjuncts reported greater use of what could be considered less sophisticated technology relative to those employed by full-time faculty.

It is still too early to predict when the pandemic will completely end and whether life will return to a pre-pandemic "normal." The post-pandemic operations

and world of higher education is also still unknown. This survey provides preliminary evidence that faculty are able to adapt in the midst of crises; however, it also highlights several categories of faculty who may have a more difficult time during transition points. These results provide insight into opportunities to offer additional supports for those faculty who are most vulnerable and in greater need of adjustments to their work.

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APPENDIX A: USE OF TECHNOLOGY PRE AND POST COVID-19 RESPONSES

The complete set of responses to questions about the use of technology pre- and post COVID-19 are presented in the tables below:

Table A.1

Before the university went online due to COVID-19, what educational technology did you use for teaching?

	Very often (4)	Often (3)	Sometimes (2)	Never/Rarely (1)	I don't know what this is	Mean
Canvas quizzes	214	120	190	562	37	1.99
Canvas discussions	220	125	267	481	30	2.08
Canvas speed grader and feedback tools	500	133	117	328	51	2.75
Video conferencing (e.g., Zoom, Webex)	195	89	181	636	28	1.86
Video conferencing features	121	44	116	799	48	1.52
VoiceThread	29	15	57	796	226	1.19
Narrated slides	94	58	146	726	98	1.53
Echo 360 tools	24	18	35	635	409	1.20
Ensemble Anthem	17	16	36	607	445	1.18
Google Drive	304	207	260	308	40	2.49
Microsoft Office Suite	808	135	75	97	14	3.48
Screencasts	63	41	72	667	274	1.41
Polling tools	71	77	171	697	103	1.54
Self-made audio recordings	72	66	127	754	99	1.46
Existing audio recordings	120	106	185	614	90	1.74
Self-made video recordings	130	92	161	657	78	1.71
Existing video recordings	299	269	266	249	40	2.58
Adobe Creative Cloud	267	165	170	434	81	2.29

Table A. 2

After the university went online due to COVID-19, what educational technology did you use for teaching?

	Very often (4)	Often (3)	Sometimes (2)	Never/ Rarely (1)	I don't know what this is	Mean
Canvas quizzes	333	170	163	397	22	2.41
Canvas discussions	361	178	191	340	26	2.52
Canvas speed grader and feedback tools	605	154	79	226	29	3.07
Video conferencing (e.g., Zoom, Webex)	930	74	42	60	4	3.69
Video conferencing features	460	153	163	299	25	2.72
VoiceThread	60	55	89	686	200	1.43
Narrated slides	179	108	135	584	87	1.88
Echo 360 tools	22	21	40	637	373	1.21
Ensemble Anthem	32	25	36	581	409	1.27
Google Drive	367	221	193	270	40	2.65
Microsoft Office Suite	793	135	76	85	11	3.50
Screencasts	108	71	81	591	231	1.64
Polling tools	104	123	218	557	83	1.77
Self-made audio recordings	124	99	124	658	78	1.69
Existing audio recordings	128	134	151	594	75	1.80
Self-made video recordings	256	149	149	472	56	2.18
Existing video recordings	360	245	201	259	28	2.66
Adobe Creative Cloud	287	190	135	399	73	2.36

APPENDIX B: USE OF TEACHING METHODS PRE AND POST COVID-19

RESPONSES

The complete set of responses to questions about the use of teaching methods pre- and post COVID-19 are presented in the tables below:

Table B.1

Before COVID-19, what teaching methods did you regularly use?

	Very often (4)	Often (3)	Sometimes (2)	Never/ Rarely (1)	Mean
Lecture	730	170	139	42	3.47
Lab Activities	241	113	102	602	1.99
Polls/rapid-response devices	58	49	217	734	1.46
Surveys	36	81	339	598	1.58
Small group or pair work	472	281	207	113	3.04
Discussion	663	252	113	47	3.42
Problem solving	486	268	174	143	3.02
Case-based activities	350	209	192	312	2.56
Reflection activities	319	237	232	275	2.56
Peer review/peer critique	231	22	297	317	2.34
Experiential/community-based learning	235	145	228	459	2.15
Demonstrations	307	238	218	299	2.52
Simulation	167	148	200	539	1.95

Table B.2

After COVID-19, what teaching methods did you regularly use?

	Very often (4)	Often (3)	Sometimes (2)	Never/ Rarely (1)	Mean
Lecture	572	204	164	125	3.15
Lab Activities	114	90	123	710	1.62
Polls/rapid-response devices	102	114	252	578	1.75
Surveys	66	125	300	547	1.72
Small group or pair work	263	238	263	286	2.46
Discussion	530	265	172	93	3.16
Problem solving	395	232	202	222	2.76
Case-based activities	290	198	185	372	2.39
Reflection activities	301	228	194	318	2.49
Peer review/peer critique	193	211	225	416	2.17
Experiential/community-based learning	137	131	148	624	1.79
Demonstrations	189	187	213	451	2.11
Simulation	135	120	153	628	1.77

APPENDIX C: FACULTY SURVEY: COVID-19 RESPONSE ASSESSMENT

Q1 [Institution] wants to learn more about your perspectives and experiences during the COVID-19 crisis and your thoughts on the fall semester. While future decisions about operations ultimately will be guided by governmental mandates and public health guidelines, your responses to this survey will be helpful to our planning.

We appreciate you taking approximately 10 minutes to complete the survey. Please be assured that all your responses are treated seriously and confidentially. We will use your TUid to relate your responses with demographic data from university systems, but your identity will not be released for any purpose, and information gathered from this survey will be presented only in a summarized form. If you have any questions regarding this survey, please send an email to surveys@[institution].edu.

Q2 What level students do you teach? Select all that apply.

- ☐ Undergraduate (1)
- ☐ Graduate (2)
- ☐ Professional (3)
- ☐ Non-credit (4)

Q3 In the transition to a remote environment because of COVID-19, how useful did you find each of the following?

	Very useful (4)	Somewhat useful (3)	Not useful (2)	I did not use (0)
The CAT's REMOTE website, resources and emails (Q3_1)	○	○	○	○
The CAT's workshops, webinars and consultation services (Q3_2)	○	○	○	○
Faculty support group (e.g. virtual faculty water cooler) (Q3_3)	○	○	○	○
My school/college's workshops and resources (Q3_4)	○	○	○	○
My dean/dean's office (Q3_5)	○	○	○	○
My chair (Q3_6)	○	○	○	○
My colleagues (Q3_7)	○	○	○	○
Information Technology Services (ITS) (Q3_8)	○	○	○	○
University Libraries (Q3_9)	○	○	○	○
Student Success Center (Q3_10)	○	○	○	○
Disability Resources and Services (DRS) (Q3_11)	○	○	○	○
Wellness Resource Center (Q3_12)	○	○	○	○
Tuttleman Counseling Services (Q3_13)	○	○	○	○
Employee Health (Q3_14)	○	○	○	○

Human Resources (Q3_15)	○	○	○	○
Office of Faculty Affairs (Q3_16)	○	○	○	○
Dean of Students/CARE Team (Q3_17)	○	○	○	○
Other (please specify): (Q3_18)	○	○	○	○

Q4 What additional resources would you like to have available to you?

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Q5 **Before** COVID-19, what educational technology did you regularly use in your teaching?

	Very often (4)	Often (3)	Sometimes (2)	Never/rarely (1)	I don't know what this is (0)
Canvas quizzes (Q5_1)	○	○	○	○	○
Canvas discussions (Q5_2)	○	○	○	○	○
Canvas Speed Grader and feedback tools (Q5_3)	○	○	○	○	○
Video Conferencing (e.g., Zoom, WebEx) (Q5_4)	○	○	○	○	○
Video conference features (e.g., breakout rooms, polling) (Q5_5)	○	○	○	○	○
VoiceThread (Q5_6)	○	○	○	○	○
Narrated slides (voiceover PowerPoint) (Q5_7)	○	○	○	○	○
Echo 360 tools for teaching (Q5_8)	○	○	○	○	○
Ensemble Anthem (Q5_9)	○	○	○	○	○
Google Drive (e.g., Sheets, Docs, Slides) (Q5_10)	○	○	○	○	○
Microsoft Office suite (e.g. Excel, Word, PowerPoint) (Q5_11)	○	○	○	○	○

Screencasts (Q5_12)	○	○	○	○	○
Polling tools (Q5_13)	○	○	○	○	○
Self-made audio recordings (Q5_14)	○	○	○	○	○
Existing audio recordings (Q5_15)	○	○	○	○	○
Self-made video recordings (Q5_16)	○	○	○	○	○
Existing video recordings (e.g., Youtube videos) (Q5_17)	○	○	○	○	○
Adobe Creative Cloud (e.g. Spark, Photoshop, PDFs) (Q5_18)	○	○	○	○	○
Other. Please describe: (Q5_19)	○	○	○	○	○

Q6 After the university went online due to COVID-19, what educational technology did you use for teaching?

	Very often (4)	Often (3)	Sometimes (2)	Never/rarely (1)	I don't know what this is (0)
Canvas quizzes (Q6_1)	○	○	○	○	○
Canvas discussions (Q6_2)	○	○	○	○	○
Canvas Speed Grader and feedback tools (Q6_3)	○	○	○	○	○
Video Conferencing (e.g., Zoom, WebEx) (Q6_4)	○	○	○	○	○
Video conference features (e.g., breakout rooms, polling) (Q6_5)	○	○	○	○	○
VoiceThread (Q6_6)	○	○	○	○	○
Narrated Slides (Voiceover PowerPoint) (Q6_7)	○	○	○	○	○
Echo 360 tools for teaching (Q6_8)	○	○	○	○	○
Ensemble Anthem (Q6_9)	○	○	○	○	○

Google Drive (e.g., Sheets, Docs, Slides) (Q6_10)	○	○	○	○	○
Microsoft Office suite (e.g. Excel, Word, PowerPoint) (Q6_11)	○	○	○	○	○
Screencasts (Q6_12)	○	○	○	○	○
Polling tools (Q6_13)	○	○	○	○	○
Self-made audio recordings (Q6_14)		○	○	○	○
Existing audio recordings (Q6_15)	○	○	○	○	○
Self-made video recordings (Q6_16)	○	○	○	○	○
Existing video recordings (e.g., Youtube videos) (Q6_17)	○	○	○	○	○
Adobe Creative Cloud (e.g. Spark, Photoshop, PDFs) (Q6_18)	○	○	○	○	○

Other. Please describe: (Q6_19)	○	○	○	○	○

Q7 **Before** COVID-19, what teaching methods did you regularly use?

	Very often (4)	Often (3)	Sometimes (2)	Never/rarely (1)
Lecture (Q7_1)	○	○	○	○
Lab activities (Q7_2)	○	○	○	○
Polls/rapid-response devices (Q7_3)	○	○	○	○
Surveys (Q7_4)	○	○	○	○
Small group or pair work (Q7_5)	○	○	○	○
Discussion (Q7_6)	○	○	○	○
Problem solving (Q7_7)	○	○	○	○
Case-based activities (Q7_8)	○	○	○	○
Reflection activities (Q7_9)	○	○	○	○
Peer review/peer critique (Q7_10)	○	○	○	○
Experiential/community-based learning (Q7_11)	○	○	○	○
Demonstration (Q7_12)	○	○	○	○
Simulation (Q7_13)	○	○	○	○
Other. Please describe: (Q7_14)	○	○	○	○

Q8 **After** COVID-19, I used the following teaching methods:

	Very often (4)	Often (3)	Sometimes (2)	Never/rarely (1)
Lecture (Q8_1)	○	○	○	○
Lab activities (Q8_2)	○	○	○	○
Polls/Rapid Response Devices (Q8_3)	○	○	○	○
Surveys (Q8_4)	○	○	○	○
Small group or pair work (Q8_5)	○	○	○	○
Discussion (Q8_6)	○	○	○	○
Problem solving (Q8_7)	○	○	○	○
Case based activities (Q8_8)	○	○	○	○
Reflection activities (Q8_9)	○	○	○	○
Peer review/peer critique (Q8_10)	○	○	○	○
Experiential/community-based learning (Q8_11)	○	○	○	○
Demonstration (Q8_12)	○	○	○	○
Simulation (Q8_13)	○	○	○	○
Other. Please describe: (Q8_14)	○	○	○	○

Q9 Is there anything else you want to share with us about your use of educational technologies or your teaching methods since COVID-19?

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Q10 After going online during the spring semester, I did the following with regards to my course assessments (e.g., exams, papers, quizzes, presentations, portfolios): (Select all that apply.)

- [ ] Made no changes to my assessments (1)
- [ ] Lowered the stakes of my assessments (e.g., changed an exam to count 20% instead of 40%) (2)
- [ ] Gave more frequent, but lower-stakes, assessments (3)
- [ ] Eliminated an assessment and substituted a different type of assessment (4)
- [ ] Allowed students to choose from a variety of assessments (5)
- [ ] Gave incompletes until my students can be back on campus to complete my usual assessments (6)
- [ ] Used a proctoring solution (e.g., Proctorio) to ensure exam security (7)
- [ ] Used Zoom to proctor exams (8)
- [ ] Used Canvas quiz features such as random questions/answers, time limits, or item banks to improve the security of my exams (9)
- [ ] Had students sign an honor code statement, or I talked about the importance of integrity before taking exams (10)
- [ ] Was flexible with due dates and times (11)
- [ ] Allowed students to submit work in a variety of ways (upload in Canvas, email, Google Drive) (12)
- [ ] Allowed students to revise or resubmit work (13)
- [ ] Allowed open book/open notes for exams (14)

☐ Tried a variety of strategies to improve exam integrity (15)

Q11 When teaching online, how easy or difficult do you find the following:

	Very easy (4)	Somewhat easy (3)	Somewhat difficult (2)	Very difficult (1)	Not applicable; I did not perform this activity (0)
Using Zoom (Q11_1)	○	○	○	○	○
Using Canvas (Q11_2)	○	○	○	○	○
Recording or presenting lectures (Q11_3)	○	○	○	○	○
Maintaining discussion boards or VoiceThreads (Q11_4)	○	○	○	○	○
Managing the participant features in Zoom (e.g., chat, hand raising) (Q11_5)	○	○	○	○	○
Adjusting creative, laboratory, or technical courses (e.g., art, performance, science/medical labs) (Q11_6)	○	○	○	○	○
Answering student emails (Q11_7)	○	○	○	○	○
Keeping students engaged (Q11_8)	○	○	○	○	○

Understanding my students' needs (Q11_9)	○	○	○	○	○
Supporting my students' well-being (Q11_10)	○	○	○	○	○
Locating non-responsive students (Q11_11)	○	○	○	○	○
Maintaining the quality of interactions with my students (Q11_12)	○	○	○	○	○
Maintaining my normal academic standards (Q11_13)	○	○	○	○	○
Assigning grades (Q11_14)	○	○	○	○	○
Adapting major exams to the online environment (Q11_15)	○	○	○	○	○
Advising on theses and/or dissertations (Q11_16)	○	○	○	○	○
Supervising undergraduate and/or graduate teaching assistants (Q11_17)	○	○	○	○	○
Holding office hours (Q11_18)	○	○	○	○	○

Obtaining digital course materials for students (e.g., articles, textbooks) (Q11_19)	○	○	○	○	○
Finding time for my research (Q11_20)	○	○	○	○	○
Finding time for my professional development (Q11_21)	○	○	○	○	○

Q12 What other changes will you make to your teaching methods when you teach online again?

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Q13 **Before** COVID-19, I believed that in order for students to learn **they** must...

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Q14 **After** moving online due to COVID-19, I believe that in order for students to learn **they** must…

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Q15 **Before** COVID-19, I believed that in order for students to learn **I** must...

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Q16 **After** moving online due to COVID-19, I believe that in order for students to learn **I** must...

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Q17 After [Institution] transitioned to remote work and instruction, how easy or difficult were each of the following?

	Very easy (4)	Somewhat easy (3)	Somewhat difficult (2)	Very difficult (1)	Not applicable (0)
Managing time (Q17_1)	○	○	○	○	○
Balancing family, household, and work responsibilities (Q17_2)	○	○	○	○	○
Having reliable access to the Internet (via Wi-Fi or Ethernet) (Q17_3)	○	○	○	○	○
Having reliable access to a functioning computer, laptop, or other similar device (Q17_4)	○	○	○	○	○
Having computer skills needed for online teaching (Q17_5)	○	○	○	○	○
Finding a quiet space for completing work (Q17_6)	○	○	○	○	○
Adjusting to working remotely (Q17_7)	○	○	○	○	○
Communicating with friends and/or family (Q17_8)	○	○	○	○	○

Communicating with colleagues (Q17_9)	○	○	○	○	○
Taking care of my physical and mental health (Q17_10)	○	○	○	○	○
Managing my stress level (Q17_11)	○	○	○	○	○
Taking care of the health needs of others in my family or household (Q17_12)	○	○	○	○	○

Q18 During the past few months, which of the following forms of communication did you find helpful?

	Very helpful (3)	Somewhat helpful (2)	Not helpful (1)	Not applicable (0)
University's COVID-19/Return to Campus website (Q18_1)	○	○	○	○
TUportal COVID-19/Return to Campus tab (Q18_2)	○	○	○	○
Email announcements from university leadership (Q18_3)	○	○	○	○
Emails from my school, college or unit (Q18_4)	○	○	○	○
[Institution] Now updates (Q18_5)	○	○	○	○
Social Media posts (Q18_6)	○	○	○	○
Tech Bits (Q18_7)	○	○	○	○
Other. Please describe: (Q18_8)	○	○	○	○

Q19 In the transition to remote teaching and learning, how concerned were you with the following:

	Very concerned (3)	Somewhat concerned (2)	Not concerned (1)
Academic honesty/cheating (Q19_1)	○	○	○
Grading (Q19_2)	○	○	○
Curriculum modifications (e.g., course content, course goals) (Q19_3)	○	○	○
Mode of online delivery (synchronous/asynchronous) (Q19_4)	○	○	○
Class attendance (Q19_5)	○	○	○
Other, please describe: (Q19_6)	○	○	○

Q20 Overall, I believe [Institution] has managed the COVID-19 response well.

○ Strongly agree (4)

○ Somewhat agree (3)

○ Somewhat disagree (2)

○ Strongly disagree (1)

Q21 Which of the following public health guidelines are you most likely to follow?

	Very likely (3)	Likely (2)	Not likely (1)
Wash or sanitize my hands regularly (Q21_1)	○	○	○
Maintain physical distance from others as recommended by the CDC (Q21_2)	○	○	○
Wear a face mask around others (Q21_3)	○	○	○
Take my temperature as needed and monitor my health (Q21_4)	○	○	○
Isolate myself temporarily if feeling ill or exposed to others who test positive (Q21_5)	○	○	○
Seek medical advice if I have symptoms (Q21_6)	○	○	○

Q22 Is there anything else you would like to tell us?

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Q23 Would you be willing to participate in a follow-up focus group or interview?

○ Yes. Please provide your email address: (1)

_____

○ No (2)