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Exploring Online Internships Amidst the COVID-19 Pandemic in 2020–2021: Results From a Multi-Site Case Study

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EXPLORING ONLINE INTERNSHIPS AMIDST THE COVID-19 PANDEMIC IN 2020–2021: RESULTS FROM A MULTI-SITE CASE STUDY

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Executive Summary

Internships and other forms of work-based learning are increasingly viewed as essential experiences for college students. Proponents point out that internships help students develop transferable skills, apply academic knowledge to authentic situations, develop professional networks, and facilitate students' socialization and entry into the professions. In recent years, online or virtual internships, which can vary according to duration, structure, and activities, have grown in prominence. The COVID-19 pandemic brought considerable interest in these unique types of internships, as many in-person positions were cancelled or shifted online. Yet little empirical research exists on the prevalence, quality, and commitment to equity and access among online internships in the United States, particularly during the pandemic period of 2020 to early 2021.

In this multi-site case study, we collected survey and interview data from college students during the pandemic. Our findings focus on three distinct cases: (1) two independent websites that provide online internship networking platforms (OINP) for students seeking online internships and employers seeking student interns (n=183 surveys, n=45 interviews), (2) 11 colleges and universities (n=9,964 surveys), and (3) a single employer-hosted online internship program at TreeHouse Foods Inc, a multi-national firm engaged in manufacturing and distributing private label food and beverage products. In analyzing and interpreting our data, we used the Internship Scorecard framework (Hora et al., 2020) from the Center for Research on College-Workforce Transitions. The framework provides a structured approach to studying internships, as well as insights from research on remote work and digital learning.

One of our primary conclusions is that while considerable variation exists within the world of internships writ large, an added layer of complexity exists for online positions with respect to information technology, internet access, work-life boundaries, and challenges associated with online or remote work that many occupations experienced during the COVID-19 pandemic. We argue that these additional concerns and factors make online internships—which are unlikely to disappear post-pandemic—a top priority for improvement, equitable access, and quality control in the field of higher education.

Our key findings outlined below should be interpreted with caution, as they do not reflect all types of online internships and also do not reflect a random and/or representative sample of all college students in the United States.

Finding #1: Internship participation was low during the COVID-19 pandemic, with interns roughly split 50/50 between online and in-person modalities.

One of the biggest findings from our pilot National Survey of College Internships, answered by 9,964 students from 11 campuses, is the large number of students (77.9%, n=7,761) who did **not** take an internship. Of the 22.1% (n=2,203) students who conducted internships, our key finding is that 45.3% (n=993) took an online internship, while 47.6% (n=1,044) had an in-person experience. These findings indicate that overall participation in internships during the pandemic was low, with only 1 in 5 students successfully completing an internship. Further, contrary to conventional wisdom that most (if not all) internships were online during the pandemic, our data show that students who took in-person internships were similar in number to those who took online positions.

These results on internship participation are similar to our 13-institution dataset for the College Internship Study (2017–2019), where interns and non-interns reflect 30% and 70% of that study sample, respectively; however, our recent data indicate a decline in overall internship participation in comparison with these earlier data.

Finding #2: Online internship networking platforms (OINPs) play an important role in the ecosystem of internship opportunities, but during the pandemic student demand outstripped the supply of available positions.

Another key finding pertained to the role that OINPs played during the pandemic. Some argued that such platforms would fill an important gap in providing access to online positions, as in-person positions were widely cancelled; however, our data indicate that while OINPs played an important role in the internship ecosystem and served the needs of many students, more students registered with these platforms than there were positions available for them. For students who registered with the OINPs in our study, the number of students who actually took a position was low: less than half the interviewees (8% for OINP-A, 42% for OINP-B) and 65.6% (n=120) of survey respondents from OINP-B. It is important to note, however, that for students who found and completed an internship via the OINP-B website, these internships were largely positive and productive experiences.

These findings raise questions about the scope and role of OINPs in the broader landscape of internships, and how they fit within the suite of online positions available to college students, while also pointing to the need to increase the number of remote positions available to students seeking internships.

Finding #3: Online interns in our sample tended to be continuing-generation, have higher GPAs, come from upper-income families, and were non-STEM majors.

Our data indicate that the demographics of students pursuing online internships varied significantly along key demographic variables such as first-generation status, grade point average, family income, major, race, and gender. While these results need to be cautiously interpreted given the non-random and non-representative nature of our study sample, the data do

indicate that online interns represent a relatively narrow slice of the student population. In particular, for those engaged in supporting STEM education, such as the National Science Foundation, these data highlight the fact that online internships are currently not a feasible option for STEM students. This situation may be due to the hands-on nature of work in these disciplines and/or the predominance of business and non-STEM employers offering remote positions.

Finding #4: Online internships do not appear to solve the access and equity problem.

For some observers, the online internship has the potential to solve the access and equity problem in the internship world, where unpaid positions typically exclude low-income or working students, too many positions are available only through social networks, and geographically isolated students are unable to access positions located in large, urban areas. However, our data suggest that online interns are predominantly from upper- and middle-income backgrounds (75.8%, n=634) and that more online than in-person internships are unpaid (42% versus 34.9%).

Our data also indicate that informal and inter-personal resources are the most common source of information about internships, that most (but not all) students recall anti-discrimination policies as part of their internship posting, and that a small number (2%, n=20) experienced discriminatory behaviors first-hand in their online internship. However, the fact that 3% (n=64) of students overall reported discriminatory behaviors and that about 40.8 % (n=405) of online interns did not recall anti-discriminatory policies from their organizations indicates room for improvement.

Finding #5: Online interns report lower satisfaction, developmental value, 21st-century skills, professional network development, and high-skill tasks than in-person interns.

As part of the quality indicators of the Internship Scorecard, we highlight key factors that the literature indicates are important components of an effective internship, as well as outcomes that are often discussed as benefits of the internship experience. Unfortunately, our data indicate that online interns have significantly lower levels of satisfaction with their experience, lower scores for both academic and developmental value, lower levels of acquiring new 21st-century skills, and less growth of professional networks than students pursuing in-person internships.

Furthermore, the data indicate that fewer online interns report being engaged in high-skill supervised work than in-person interns (31.9% to 40%), which is one of the core ideas of experiential learning, especially for internships and apprenticeships that are intended to introduce novices to the professional world. These results are troubling and indicate that the benefits of an in-person internship do not easily or uniformly translate to an online experience.

Finding #6: Future online internships must pay close attention to task design, supervision and communication.

Based on data from both our surveys and interviews with students, it is clear that while all internship providers (and their academic advisor counterparts) need to pay close attention to the

quality of task design, supervision, and communication, these issues are especially lacking in some online internships. Consequently, as the field continues to advocate for students to take online or virtual internships, we must address and improve task design, supervision, and communication . These elements also affect remote work more generally, especially the problems of social isolation and ineffective supervision and communication. Therefore, if an online internship is to provide students with remote working skills, which one student called "the future of work," then employers and academic advisors will need to improve how online experiences model and cultivate these skills.

Finding #7: Support services and training will need to be provided to many employers (and academic advisors) regarding how to design and implement an effective online internship.

One of the primary conclusions we can draw from the data collected for this study is that while online internships are likely a permanent part of the ecosystem of experiential learning for college students, and a potential answer to some vexing issues related to equitable access, they remain a work in progress. To improve these complex forms of remote and/or digital learning and professional socialization, employers and academic advisors will need training and support services to develop high-quality programs. While not all organizations will be able to offer positions like those featured by TreeHouse Foods, the goal for all online internships should be to offer experiences that comply with National Association of Colleges and Employers standards, the principles of the Internship Scorecard, and key elements of effective remote work and digital learning.

Our study indicates that the field has far to go. We cannot ignore the fact that many college students were struggling with financial, mental health, and academic challenges even before the COVID-19 pandemic. In a post-pandemic world, we should seek to improve internships at the employer and advisor levels, but also to provide support services so that students have the tools and resources to thrive and persist in higher education.

EXPLORING ONLINE INTERNSHIPS AMIDST THE COVID-19 PANDEMIC IN 2020–2021: RESULTS FROM A MULTI-SITE CASE STUDY

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I. Introduction

Work-based learning, whether in the form of an internship or apprenticeship, is one of the most influential ideas in public higher education and workforce development policy in the early 21st century. The central idea behind advocacy for work-based learning is that hands-on experiences in authentic, real-world contexts are an important complement to academic programs and classroom teaching—an idea expressed by educational researchers and learning scientists for decades (Dewey, 1997; Resnick, 1987). More recently, internships have been designated as a "high-impact" practice that improves student engagement and academic outcomes (Kuh, 2008), leading many colleges and universities to actively promote or even mandate internship programs as an essential experience.

College internships have traditionally been in-person opportunities, with students working at a local organization's office or even relocating to cities such as Washington, DC or Atlanta for the summer. In recent years, however, there has been considerable growth in the area of online internships, as organizations experiment with different types of remote work for college students, capitalizing on developments in computing technologies and organizational skills in managing remote, team-based projects (Jeske & Axtell, 2016). In addition to firms and organizations that develop online internships on their own, such as Google and AT&T, third-party vendors emerged in the 2010s to meet the growing demands for internships by creating websites that effectively match employers and students.

Many vendors or what we call online internship networking platforms (OINPs)—both non-profit and for-profit organizations—helped to usher in a new era of online internships, allowing students to find a project or employer with the click of a button, and perform their work entirely from the comfort of their own home, on their own schedule, with no relocation, transportation, or even wardrobe costs to bear.

This scenario is significant, given the long-standing concern that internships are inaccessible for low-income and/or geographically isolated students due to scheduling conflicts, lack of transportation, and the inability of many students to work for free (Curiale, 2009; Hora et al., 2020). Remote internships held promise for ameliorating these obstacles to equitable participation, and some researchers even wondered aloud if the online internship could singlehandedly improve equity and diversity in the world of internships (Kraft et al., 2019).

With the arrival of the COVID-19 pandemic, an estimated 50% of college internships were cancelled in 2020 due to the closure of many businesses across the country (McGregor, 2020; Nietzl, 2020). Employers and postsecondary institutions scrambled to find solutions to the massive disruption in the functions of our daily lives, workplaces, postsecondary institutions, and plans for student internships. While some companies cancelled internships, many moved to

create online experiences where students could participate remotely. For example, the insurance company Humana has long had an active internship program, hiring college students in information technology, actuarial, analytics, and finance and accounting positions. The head of Talent Management at Humana told a reporter that,

> We are very well experienced at working from home. We've done it before. We did it before COVID-19, and we're very confident we can provide a meaningful experience. We have a plan that can be clearly articulated to interns so they are well equipped to understand the tasks and outcomes they are responsible for at the end of the summer (Braga, 2020).

A key development in higher education during the pandemic in 2020 was the rapid increase in interest in all types of online internships. As colleges, students, and employers sought ways to shift internships online while still maintaining the educational and training quality of the experience, many vendors rushed into this space with the tools, websites, and employer contacts to solve this problem. Some vendors contracted with colleges and universities to provide student access to their websites (and online internship postings). In short order, online internships arguably became the central modality of work-based learning for students around the world in 2020 (Braga, 2020; Lumpkin, 2020).

The pandemic forced such abrupt and monumental changes to our lives that robust, empirical research was warranted to gauge the effects of these disruptions on educational issues such as student mental health, variations in learning via online modalities, and student experiences with online internships. While the field of internship research itself has no shortage of important and fascinating research questions, and our Center for Research on College-Workforce Transitions (CCWT) has focused on more traditional questions such as problems with accessibility and the role of supervisors, the move to online or remote modalities in 2020 presented a host of new questions that we felt obligated to pursue:

- How many students conducted an online internship during the COVID-19 pandemic?
- What are the programmatic features of an online internship and how are they similar to and/or different from a traditional internship?
- What do students have to say about their experiences taking an online internship? Are they satisfied with the experience?
- Are there any patterns across academic majors with respect to which students are taking online internships? Are STEM students pursuing these opportunities in particular?
- Do online internships address the long-standing equity and access problem with internships?

These are critical questions because many state governments and institutions of higher education across the country continue to develop and/or promote online internship programs, and it is likely that both remote work and online internships will remain a permanent feature of the workplace and experiential learning landscape. Consequently, these programs have the potential to affect the lives of many thousands of college students, the companies they intern with, and the academic programs that are ultimately responsible for their education.

Yet, there is little research on online internships. It is no exaggeration to state that the field of higher education is engaging in a massive experiment in which students are completing online internships with limited evidence to support their usefulness for students or their effectiveness in contributing to positive educational or career outcomes for college graduates. This concerns us, from our perspective as a research center whose mission is to centralize student interests and experiences in debates and policymaking around college-workforce transitions.

In this study, we aim to fill these gaps in the literature by generating new evidence about online internships amidst the COVID-19 pandemic for both scholarly and practitioner audiences. Sponsored by the National Science Foundation's (NSF) RAPID program, this mixed-methods multi-site case study involved collecting and analyzing data for three distinct cases: (1) two independent websites that provide online internship networking platforms (OINP) for students seeking online internships (n=183 student survey responses, n=45 student interviews) and employers seeking student interns; (2) 11 four-year universities (n=9,964 student survey responses); and (3) a single employer-hosted online internship program at TreeHouse Foods Inc. In addition, to provide a more comprehensive account of online internships during the pandemic, we also provide a brief overview of other studies and accounts of online internships from 2020 and early 2021 in order to contextualize our findings and provide a comprehensive snapshot of college student experiences with online internships amidst the COVID-19 pandemic. We conclude the report with recommendations for future research, policymaking, and educational practice surrounding online internship programs.

II. Background: What Do We Know About Online Internships?

Within the universe of internship programming, which consists of a diverse range of experiences that can vary according to duration, task quality, and mentorship quality, one type of internship has been gaining in prominence in recent years: the online or remote internship[1] (Hora et al., 2017). But what exactly is an online internship?

What Is an Online, Remote, or Virtual Internship?

Before we answer this question, it is important to consider the definition of a traditional in-person internship. This is harder than it may seem because there is no single format or structure for an internship, in contrast to work-based learning programs such as student-teaching in K12 pre-service teacher training programs, where the experience is structured in accordance with state and/or professional certification requirements. While some academic programs do have criteria for approved internship programs, many do not, resulting in a situation where college internships come in all shapes and sizes.

This programmatic diversity can be seen as a strength, as internships can be designed to fit the unique needs and situations of individual students (O'Neill, 2010). However, some organizations, such as the National Association of Colleges and Employers (NACE), have advanced strict definitions for internship programs to address growing concerns about the legality of unpaid work and the educational value of some programs. It is instructive to consider

the widely cited definition offered by NACE as we consider online internship experiences, grounded in the contention that, "an internship is a legitimate learning experience benefitting the student and not simply an operational work experience that just happens to be conducted by a student" (NACE, 2018).

According to NACE (2018), the following criteria must be met for an experience to be considered a legitimate internship:

1. The experience must be an extension of the classroom: a learning experience that provides for applying the knowledge gained in the classroom. It must not be simply to advance the operations of the employer or be the work that a regular employee would routinely perform.
2. The skills or knowledge learned must be transferable to other employment settings.
3. The experience has a defined beginning and end, and a job description with desired qualifications.
4. There are clearly defined learning objectives/goals related to the professional goals of the student's academic coursework.
5. There is supervision by a professional with expertise and educational and/or professional background in the field of the experience.
6. There is routine feedback by the experienced supervisor.
7. There are resources, equipment, and facilities provided by the host employer that support learning objectives/goals.

While these criteria were originally articulated to identify truly educational experiences that could ethically be provided without pay, NACE (2018) also advanced their definition and criteria in order to "establish uniformity in the use and application of the term." Clarity and consistency are important not only for students, but also for employers and career services professionals to avoid divergent or even contradictory interpretations of the term (Silva et al., 2018).

In addition, within our own research center we highlight the potential for internship experiences to provide students with an immersive experience in an organizations' workplace culture, which can provide rich opportunities for the development of professional networks and discipline- or occupation-specific professional skills and competencies (Hora et al., 2020).[2] As we consider the nature of online internships, we agree with NACE (2018) and argue that it is important to think about these criteria and definitions for traditional in-person internships and that a remote or online internship should be held to these standards.

We next consider definitions of online or remote internships. One of the first things to notice is the variety of terms being used to describe work-based learning programs that do not occur in

a face-to-face manner: virtual, micro-, remote, and online internships. Examples of definitions for these types of internships include the following:

> Call it what you will: Remote internship, Virtual Internship, Online Internship, Tele-working, Telecommuting, it all means the same thing: you will be completing your internship without a commute and directly from your own laptop! When completing a remote internship many of the same aspects of a traditional in-person internship still exist including, meetings with your supervisor or teammates, completing a mix of individual and group projects, and learning about the overall company culture and industry it works in (VirtualInternships.com, 2020).

> Micro-Internships are short-term, paid, professional assignments that are similar to those given to new hires or interns. Unlike traditional internships, Micro-Internships can take place year-round, typically range from 5 to 40 hours of work, and projects are due between one week and one month after kick-off (Parker Dewey, 2020).

> A virtual internship is when an intern works remotely…as in anywhere other than your office. Sometimes referred to as "telecommuting" or "offsite work," in the job market in general, hiring virtual employees has officially become a trend (Chegg.com, 2020).

In perhaps the most comprehensive analysis of different types of online internships, Bayerlein and Jeske (2018) posited that three types of internship formats exist—traditional, e-internships, and simulated internships—and speculated on the different types of outcomes students may expect from them (i.e., cognitive, skill-based, and affective outcomes). For Bayerlein and Jeske (2018), an e-internship is an internship that is predominantly mediated by computer technologies, and a simulated internship is attached to and hosted by a college or university instead of an employer. In most other instances in the literature, however, no careful distinctions between types of computer-mediated, work-based, or work-integrated learning were made, leaving considerable room for assumptions and/or confusion about the precise nature of the experience.

Thus, definitions of what constitutes an "online" internship may differ from the criteria advanced by organizations such as NACE. In addition, it's clear that the diversity of features among traditional in-person internships (e.g., duration, quality of tasks, type of mentoring) also applies to online or remote internships.

Our Definition(s) of an Online Internship

Review of the literature illuminated the wide range of online internship experiences available to students. Just as with face-to-face internships, there is no single type. We found that the host organization—employer or third-party vendor—makes a difference in the structure, nature, and

potential outcomes of the internship experience. While it's important to acknowledge this diversity of programmatic types and experiences, it is also useful to articulate a definition of online internships so that practitioners, scholars, policymakers, and students have a common understanding of the phenomena being discussed.

We offer the following definition. It embraces the variability within the field while also naming three critical dimensions that can be used to better understand these online experiences:

> An online internship is a work-based learning program conducted exclusively via digital or online technologies, but with important variations with respect to host organization, program duration, and compliance with experiential learning standards.

Evidence on Key Ingredients for Successful Online Internships, Remote Work, and Digital Learning

Despite questions regarding nomenclature in the field, it is possible to discern insights into key principles for effective online or digitally mediated working and/or learning environments from three distinct yet related fields of study: online internships, remote work, and digital learning. While mostly conceptual, research on online and remote internships leans heavily towards providing tips and strategies for these experiences. Studies and discussions of remote work, and empirical studies of digitally mediated learning from the learning sciences, also shed light on the online internship experience (see Table 1 below).

Insights From Studies of Online and Remote Internships

In our review of the literature it quickly became apparent that much of the work on online or remote internships did not involve empirical research. Instead, authors engaged in conceptual or rhetorical discussions about the benefits of virtual internships. For example, Vriens and colleagues (2010) argue that given constraints in student mobility and access to suitable internship placements for students in Europe, a virtual experience may be preferable and can provide opportunities for business–university partnerships, development of students' skills with information technology, and access to internships for low-income students. In a similar paper that also considered virtual internships in a European context, Vriens et al. (2013) suggested that an effective virtual internship needs effective information technologies, should include a face-to-face component, and needs to be well-organized and planned.

In an observation underscoring the importance of the design phase of an internship, Ruggiero and Boehm (2016) found that principles of effective design that applied to face-to-face learning were particularly important for a virtual internship. These included the need to articulate learning outcomes prior to creating the internship (i.e., backwards design), pre-internship meetings with clients (i.e., faculty) to identify performance goals, and facilitating peer communications among students. Ultimately, the authors found that, "explicit, clear communication between clients, mentors, and interns during the virtual internship led to secure attachments and internships that ended in completed projects meeting all of the criteria" (Ruggiero & Boehm, 2016, p. 117).

Similarly, Bayerlein (2014) argues that internship designers should take a backwards design approach for virtual internships, where desired skills are articulated and then intern tasks and assessments are identified. Backwards design is an influential approach in K12 and postsecondary curriculum design circles but has yet to be widely adopted by those engaged in the design of internships and other forms of WBL (Wiggins and McTighe, 2005). In a related article, Roy and Sykes (2017) discuss a well-known educational concept that is not as common in WBL, self-regulated learning, which refers to the idea that effective learners must self-monitor their own learning (or lack thereof), institute effective study habits in response, and self-motivate to improve performance (e.g., Zimmerman & Schunk, 2001). In their paper, Roy and Sykes (2017) propose a model for designing virtual internships in the hospitality industry that emphasize four stages—planning, engagement, assimilation (i.e., application of theory to practice), and review and reflection—that faculty and students should consider.

Insights From Studies of Remote Work

While an analysis of the literature on remote work and key principles of the effective management of remote workers is beyond the purview of this report, here we briefly outline some findings and strategies that may be relevant for online internships. In 2020, nearly 50% of the U.S. workforce worked remotely (Brynjolfsson et al., 2020). Given the likelihood that online internships will outlast the COVID-19 pandemic, and in light of the newfound value of remote working skills for college graduates entering the workforce, we contend that it is critical for internship practitioners to pay attention to the world of remote work.

While the benefits to remote work are well known (e.g., reduced office rental needs, reduced commuting times, flexible schedules as a benefit), challenges include keeping employees engaged in the work and organizational culture, instances of decreased productivity, and negative consequences of fewer social interactions (Sull et al., 2020). In a survey of 350 human resources professionals, Sull et al., (2020) found that employers can help make remote work more effective and satisfying by providing basic hardware and communication tools (including stipends for new technologies); maintaining frequent, transparent communication; providing assistance to maintain productivity and engagement; and helping to manage the challenges of remote work-life balance.

Prior to the COVID-19 pandemic, firms such as Google had begun expanding their remote workforce, and a study by their People Analytics Manager Veronica Gilrane (2019) found that while both in-person and remote workers were similarly productive, there were challenges with managing a workforce distributed across multiple cities or countries. Consequently, Gilrane (2019) recommended that employers should: (1) make teams feel more connected as people (not just employees) and via multiple modes of interaction, (2) set boundaries around working hours and work-life issues, and (3) develop both in-person and virtual connections whenever possible. These insights regarding the importance of adequate hardware and software, the need for employer (and manager) attention to work-life issues and communication norms and schedules, are issues that are likely relevant to the online internship space.

Insights From Studies of Digitally Mediated Learning

Finally, it is important to recognize that online forms of experiential learning and/or hands-on learning are not recent inventions. Beginning in the 1980s, learning scientists explored ways to use computer-assisted learning for K–12 students (Bransford et al., 2000; Littlefield et al., 1988), and more recently educators in fields ranging from medicine (Heinrichs et al., 2008) to engineering (Balamuralithara & Woods, 2009) have used computer-based simulations as tools for training future professionals. In addition, researchers have long explored the nature of teaching and learning in online settings (e.g., Liu et al., 2010; Ouyang & Scharber, 2017), yet these studies are infrequently included in conversations about internships, whether in their traditional forms or in online venues.

Here, we briefly touch on some key findings and principles that may be relevant to online internships. First, the rise of digitally mediated learning requires students to acquire literacy in information retrieval and technology use, especially the skill to sift through voluminous amounts of information now available on the internet and via online search engines (Warschauer, 2007). Second, educators will need to better understand participatory online venues where youth increasingly engage in social activity and learning, such as social media, online gaming, collaborative forums for writing and design, and so on (Jenkins et al., 2007). While these online resources may not be used to perform tasks for an online internship, it may be important to recognize the nature of students' online lives and activities. Finally, research on learning in online courses shows that students highly value timely feedback, view video-based instruction as useful, and don't require synchronous interactions to be successful in a course (Martin et al., 2018).

***Table 1*. Principles of effective online/remote work and/or learning from three fields**

Online Internship	Remote Work	Digital Learning
Sufficient information technology	Sufficient hardware and software	Digital information literacy skills
Reflect "backwards design" (especially clear expectations/learning goals)	Attention to work-life boundaries	Reality that students now engage in a variety of informal and participatory learning venues online
Self-regulated learning	Clear and frequent communication	Value of timely feedback in online courses
Effective supervision	Forge relationships on basis of both personal and work identities	

The Potential for Online Internships to Address Issues of Diversity, Equity, and Inclusion

Next, we briefly review the issue of equity and access to internships. This issue has long plagued the world of internships, and became more salient during the pandemic as well as the widespread anti-racism protests in summer of 2020. Low-income and first-generation students are often excluded from unpaid internship opportunities because they lack funds to relocate to expensive cities and work for free (Curiale, 2009; Jacobson & Shade, 2018). In fact, given the large number of internships located in expensive cities, such as Washington, DC or New York, even a paid position may exclude students who do not have the financial resources and/or social and cultural capital to access these environments. Further, working students are at a disadvantage because their work schedule often prevents them from pursuing an internship (Hora et al., 2020).

In light of these scenarios, online internships have been touted as a potential equalizing force in the internship economy: theoretically, students with disabilities, those living in rural areas, low-income students, and working students can access an internship from their home and on their own schedule (Kraft et al., 2019). Kraft et al. (2019) focus on students with disabilities in Australia, and the potential of online internships to complement pre-existing corporate diversity initiatives; the authors echo arguments that online internships can (and will) increase racial and socio-economic diversity in the intern applicant pool (Knight, 2021). In fact, due in part to the promise of online internships to address issues of diversity, equity and inclusion (DEI) in WBL and the labor market, some argue that, "Virtual internships are here to stay – and that's a good thing" (Schloetzer, 2021).

In addition, some view online internships as a tool for employers to diversify their workforce via hiring and recruitment procedures that deviate from previous in-person practices. The financial firm Capitol One, for instance, recognized that their hiring managers were going on recruiting trips to colleges and universities similar to the ones they had attended. Unsurprisingly, it resulted in a crop of interns that resembled the current staff of the organization. Shifting to a process where the candidates were interviewed without exposing their backgrounds helped recruiters identify candidates through behavioral-based interview questions about their experience, work ethic, and thought processes. By learning about candidates through conversations instead of resumes, the hiring managers were more engaged with the interviewees. The result was more candidates from a diverse group of schools in different geographic areas the firm had not worked with previously (Vozza, 2020).

With these issues in mind, we turn to the organizing framework for the data reported in this report: the Internship Scorecard scrutinizes the nature of the online internship experience and its role (or not) in facilitating equitable access for *all* college students.

III. Our Approach: The Internship Scorecard

A primary goal of our broader research program on college internships is to problematize the notion of an "internship" as a program that varies in terms of quality, purpose, and activity. Our team previously developed a framework for diagnosing, studying, and evaluating internships to

account for this complexity: the Internship Scorecard (Hora et al., 2020). This framework conceptualizes internships as varying across three categories: **(1) prevalence, format and purpose, (2) quality and (3) equitable access.**

Our approach differs from NACE (2018) and CAS (2018) because it does not articulate a set of criteria that *all* internships must meet to be considered "legitimate" or high quality. Instead, we posit that the specific format and activities of an internship may vary, depending on the goals of each student and/or their academic program, and their level of maturity and preparedness. Consequently, no determinations of program quality can be made solely on a program's modality (e.g., online or in-person), duration, or activities, as each may or may not align with students' unique goals for their experience. This approach takes the degree of alignment between student goals and program modality, duration, and type of activity as a key indicator for program quality. In addition, the Scorecard approach centers the long-standing issues of equity and accessibility in the world of internships—where unpaid positions are inaccessible to working and/or low-income students, and also can act as a gatekeeping mechanism that reproduces inequality and privilege.

The Scorecard is intended to be adapted for different purposes and datasets. In this study, we adapted the framework to capture key elements of online internships that were available from our survey. The factors that we report in this paper are described in Table 2.

***Table 2*. Indicators from the Internship Scorecard used in this study**

Indicator	Brief description	Included in survey(s)	
Prevalence, format, and purpose		**OINP-B Survey**	**NSCI Survey**
Modality	Location of internship (online, in-person)	X	X
Purpose	Rationale for student pursuing internship		X
Duration	Length of internship	X	X
Features of program quality			
Plan for learning	Presence of plan outlining learning goals		X
Tasks and activities	Nature of tasks performed		X
Supervisor mentoring	Mentoring for job performance	X	X
Supervisor support	Active support of student goals	X	X
Skill development	Whether specific skills were developed		X
Network development	Whether professional network grew		X
Satisfaction with the internship	Level of student's satisfaction	X	X
Developmental value (career & academic)	Value of internship for student's career and academic goals	X	X
Equitable access			
Compensation	Whether internship was paid/unpaid	X	X
Type of posting	If posting was publicly available		X

Indicator	Brief description	Included in survey(s)	
Non-discrimination posting	Posting by employer of anti-discrimination policies		X
Experiences with non-discrimination	Student experiences with discrimination		X
Obstacles to participation	Obstacles keeping non-interns (who wanted an internship) from taking an internship	X	X

In our study, we use a combination of indicators from the Internship Scorecard and key principles of effective online internships, remote work, and digital learning (Table 1) to assess the quality and effectiveness of the internships reported by students in our project. We aim to advance and deepen the conversation about the benefits and value of online internship participation to a more evidence-based discussion of prevalence, quality and equitable access.

IV. Methods

We use a multi-site case study research design. The cases are bounded units of social action, where internship programs are designed and/or experienced by college students. In this study, we have three distinct cases: (1) 11 colleges and universities; (2) two independent websites that provide online internship networking platforms (OINP) for students seeking online internships and employers seeking student interns, and (3) a single employer-hosted online internship program at TreeHouse Foods Inc.

Given the breadth of online internship experiences during the COVID-19 pandemic of 2020–2021, our approach to case study analysis focuses on comparing the experiences of students across these three cases, rather than providing in-depth and multi-faceted accounts of individual cases (Yin, 2017). Similarly, while some approaches to comparative case studies deeply examine the historical, socio-cultural and political contexts of each case (e.g., Vavrus & Bartlett, 2006), in this study we concentrate on providing fine-grained details about students' experiences with online internships, and similarities and differences between and among the three cases. The research questions (RQs) that guided our study are:

> **RQ1**: How many students successfully completed an online internship in 2020, and what were their demographic and academic characteristics (e.g., major or discipline)?
>
> **RQ2**: What were some key structural features of these online internships, such as duration, compensation, type of mentorship, and the nature of interns' tasks? Were these features associated with particular student demographic or academic characteristics?

RQ3: How do students rate their satisfaction and the developmental value (both academic and career-related) of their online internship experience?

RQ4: How, if at all, do these data compare with students pursuing in-person internships?

These questions were pursued with respect to the three different types of cases included in our study. In the remainder of this section, we briefly review the sampling procedures used for each case; the nature of the data collection instruments and subsequent datasets; analytic techniques; and limitations of the overall study.

Case 1: Survey Study of 11 Colleges and Universities (Ten 4-Year, One 2-Year)

In order to provide insights about the prevalence, type, and outcomes of online internships among a broader population of college students than available from the OINPs, we drew upon data collected for a larger study of college internships underway at our center. The data reported here were collected as part of a pilot phase of a new national, survey-based study that included 11 colleges and universities.

Sampling and Data Collection

The 11 institutions volunteered to participate in the current study via registering for the pilot study on internship list-serve. All the of the institutions conducted data collection using all registered undergraduate students. Institutions distributed the online survey using an anonymous link to their students through various channels, such as their student serve list, event webpage, career center portal, etc. Table 4 lists all participating institutions, their institution type, region, survey population, which is their total number of registered students, sample size of the collected dataset, and response rate. Overall, the study sample for the current analysis includes 9,964 students with an average response rate of 8.53%.

***Table 3*. Description of study institutions**

	Institution	Type	Region	Survey population	Survey responses	Response rate
1	Institution A	Public 4-year	Midwest	15,838	784	5%
2	Institution B	Public 4-year	Mountain West	1,750	168	10%
3	Institution C	Private 4-year	Northeast	1,915	279	14.6%
4	Institution D	Public 4-year	Southwest	6,041	296	4.8%
5	Institution E	Private 4-year	Midwest	11,076	1,787	16.1%
6	Institution F	Public 4-year	Midwest	31,310	3,212	10.57%
7	Institution G	Private 2-year	Midwest	18,745	515	2.75%

8	Institution H	Public 4-year	Midwest	19,120	2,512	13.14%
9	Institution I	Public 4-year	Mid-Atlantic	26,024	113	0.4%
10	Institution J	Public 4-year	Mid-Atlantic	1,419	280	19.73%
11	Institution K	Public 4-year	South	29,765	1,362	4.56%

The survey was administered between November 2020 and March 2021, with the survey eliciting responses about the students' prior 12 months of experiences with internships and/or their desire to pursue an internship. The survey was based on an instrument developed for the College Internship Study (see http://ccwt.wceruw.org/resources/researchInstruments.html), and included questions about student demographics, characteristics of internship programs (e.g., duration, compensation, type of supervision), and barriers to internship participation. For the instrument used in this study, students were asked to indicate the modality of their internship if they had in fact taken one (i.e., in-person, online, other). Subsequent questions focused on their experience with that particular type of internship. For many students who indicated "other," their experience was a combination of an in-person and online internship; in this report, we call these "hybrid" internships. The survey also included items that are intended to be used for the Internship Scorecard framework; in the interests of keeping the survey short, some Scorecard components were not included (see Table 2). The entire survey instrument, variable codebook, and psychometric report is available at: http://ccwt.wceruw.org/resources/researchinstruments.html.

Data Analysis

The data analysis stage began with the cleaning of the initial survey data to remove illogical answers and incomplete responses, especially from open-ended, text-based questions. The final dataset included 9,964 responses from students in 11 colleges and universities. Table 4 shows the demographic characteristics of our study sample. Descriptive analysis, chi-square tests, and one-way Analysis of Variance[1] (ANOVA) were applied to answer our research questions, especially differences in the experiences of students taking an online, in-person, or hybrid internship experience.

[1] A chi-square test of independence is a statistical hypothesis test that is used to determine if there is a significant relationship between two categorical variables. We would expect that there is a significant relationship between two categorical variables based on the inspection of the standardized residual scores, that is, when the pattern of observed frequencies differs from the pattern of expected frequencies between two categorical variables. A one-way ANOVA is a statistical technique to test whether there are significant differences in the means of three or more groups.

***Table 4*. Demographic characteristics of the study sample**

	Survey sample
Total	9,964
Gender	
Male	2,776 (27.9%)
Female	6,907 (69.3%)
Other gender (i.e., Non-binary/Genderqueer)	268 (2.7%)
Race	
Asian	1,348 (15.8%)
Black	516 (4.5%)
Hispanic	817 (16.1%)
White	6,485 (54.6%)
Two or more races	623 (6.1%)
Others	50 (2.9%)
First-generation status	
First-generation students	2,281 (23%)
Continuing-generation students	7,657 (77.1%)
Enrollment type	
Full-time	9,070 (91.1%)
Part-time	883 (8.9%)
Employment type	
No employment	796 (37.7%)
Part-time employment	1,214 (57.5%)
Full-time employment	101 (4.8%)
Caregivers' income level	
Low-income	2,439 (24.5%)
Middle-income	3,508 (35.2%)
Upper-income	2,536 (25.5%)
Not sure	1,426 (14.4%)
Major	
Arts & Humanities	901 (9%)
Biosciences, Agriculture, & Natural Resources	1,382 (13.9%)
Physical Sciences, Math, & Computer Science	668 (7.6%)
Business	1,401 (14.1%)
Communications, Media, & Public Relations	478 (4.8%)
Education	440 (4.4%)
Engineering	1,458 (14.6%)
Health Professions	1,320 (13.3%)
Social Sciences	1,097 (11%)
Social Service Professions	264 (2.7%)
Other majors (not categorized)	350 (3.5%)

Limitations

Our findings should be interpreted with caution due to following limitations. The data were limited to students in a small number of institutions, which suggests that generalizing our findings to all college students in the U.S is unwarranted. A related limitation is that we did not control for other confounding factors that may lead to observed patterns or use more sophisticated statistical approaches (e.g., hierarchical linear modeling) that could isolate the specific variables contributing to observed variation in key outcome measures. However, this is not a severe limitation, as our analysis is focused on portraying overall internship experiences during the pandemic and illustrating patterns between different groups in a more general sense. Future researchers are encouraged to disentangle complex relationship around students' internship experiences by considering the multiple aspects of contexts and sample characteristics that contribute to observed variations.

Case 2: Mixed-Methods Study of Two Online Internship Networking Platforms

The lead author contacted the two online internship networking platforms (OINPs) included in the first case study and invited them to participate in this study, whereupon leadership from each organization agreed and self-selected into the study. We contacted one additional OINP, which elected to not participate. The OINPs included in our study both function as web-based platforms where employers post internship opportunities, students register with the website and apply for these positions, and the OINP itself posts additional resources for students, employers, and postsecondary institutions. Thus, it is inaccurate to view these OINPs as a "matchmaker" service for online internships. Instead, they act as a type of job board with additional resources and support services for parties involved in the internship process.

OINP-A focuses on providing students with short-term, paid online internships, with the goal to expand companies' recruiting pools, provide work-based learning opportunities to students, and to help colleges and universities expand their students' internship options (especially during the COVID-19 pandemic). OINP-B focuses on providing employers with a platform for running effective online internships, with a secondary focus on providing a venue for employers to post positions (usually longer than OINP-A) and student registrants to find opportunities. Both these OINPs tend to focus on internships in business, management, and other non-STEM fields and occupations.

Sampling and Data Collection

The original intention for this study was to send online surveys to all students registered with OINP-A and OINP-B in summer 2020. The number of responses from students at OINP-A (n=44), however, was very small and thus insufficient for further analysis. For OINP-B, our sample population was 2,493 students who had registered to join the OINP-B's database to obtain access to the remote internship opportunities posted on their website. A total of 183 students completed the survey, which resulted in a response rate of 7.3%.

When registering with the OINP-B system, students filled out an online form to join OINP-B's community; one of the questions inquired about the type of internships they were interested in: 1) software engineering (backend, frontend, data scientist, product, UI/UX, etc.); 2) business (sales, operations, similar roles); 3) marketing; and 4) other. In our study sample, 32% of the students indicated interests in business internships, 40% indicated interest in software engineering internships, and the rest indicated other fields. It is important to note that these disciplinary preferences are not the students' majors, which are reported below, but instead indicate their preference for an internship with OINP-B. Further, demographic information of the broader population of students registered with OINP-B was not available, making comparisons between this population and our study sample not possible. Additional information about the study sample is provided in Table 5.

Table 5. **Description of study sample from OINP-B**

	Survey Sample
Total	183
Gender	
Male	76 (41.5%)
Female	103 (56.3%)
Other gender (i.e., Non-binary/Genderqueer)	4 (2.2%)
Race	
Asian	85 (46.5%)
Black	25 (13.7%)
Hispanic	10 (5.5%)
White	34 (18.6%)
Two or more races/ethnicities	14 (7.65%)
Others	15 (8.2%)
First-generation status	
First-generation students	60 (32.8%)
Continuing-generation students	123 (67.2%)
Enrollment type	
Full-time	164 (89.6%)
Part-time	19 (10.4%)
Employment type	
No employment	108 (59%)
Part-time employment	67 (36.6%)
Full-time employment	8 (4.4%)
Caregivers' income level	
Low-income	74 (40.4%)
Middle-income	65 (35.5%)
Upper-income	43 (23.5%)

	Survey Sample
Major	
Arts & Humanities	18 (9.8%)
Biosciences, Agriculture, & Natural Resources	11 (6%)
Physical Sciences, Mathematics, & Computer	34 (18.6%)
Social Science	17 (9.3%)
Business	47 (25.7%)
Communications, Media, & Public Relations	5 (2.7%)
Education	3 (1.6%)
Engineering	35 (19.1%)
Health Professions	5 (2.7%)
Other majors (not categorized)	8 (4.4%)

The survey was administered during November and December 2020, with the intention of capturing students' online internship experiences in the prior 12-month period. The survey was based on the same instrument described above for the 11 colleges and universities but was revised to capture the fact that all OINP student registrants were pursuing only an online internship. For the specific variables included in the OINP survey from the Internship Scorecard, please see Table 2.

At the end of the survey, students were asked if they were willing to participate in a brief interview, and 118 volunteered and were contacted by project staff. Of those, 45 responded and were interviewed for approximately 20 minutes. For this qualitative portion of the study, students who had registered with OINP-A and who had completed our survey did indicate interest in an interview, and 24 students were subsequently interviewed from OINP-A, while 21 students from OINP-B were interviewed. A semi-structured interview protocol was used that included questions about the nature of their internship experience or obstacles to their completing one, their general experiences during the COVID-19 pandemic, issues related to technology that may have impacted their online internship and academic pursuits, and so on. It is important to note that these data were collected during a particularly stressful time in students' lives, with the ongoing COVID-19 pandemic and protests against anti-Black violence emerging in the summer of 2020.

Data Analysis

First, we cleaned the datasets with incomplete responses and illogical entry. We followed similar approaches to the cleaning and analyses of the 11 institutions noted above, with the exception of student major variables due to small sample size. Descriptive statistics for key variables were generated in order to determine the participation rate in OINP-B's programs, the structure of their online internships, and reported outcomes. In addition, a series of chi-square tests of independence and independent samples T-tests[2] were conducted to evaluate the

[2] Independent samples T-test is a statistical approach to test for differences in means between two groups.

associations between student characteristics (e.g., gender, major) and internship program features (e.g., supervisor support) and outcomes (e.g., student satisfaction).

Second, interview data were transcribed and then analyzed in MAXQDA qualitative analysis software (VERBI Software, 2019). The first step in the analysis was to segment the transcripts into units that encapsulated a single thought or idea. Second, analysts created a list of open codes based on repeated topics and themes in the data using an inductive process (Ryan & Bernard, 2003). These codes were identified by the number of times the same codes appeared in the data (i.e., recurrence). A final step of axial or interpretive coding involved reviewing these preliminary codes (and coded text), to arrive at a more limited number of summative codes, which were the basis for the descriptions included in this report.

Case 3: Study of an Employer's Online Internship Program

Finally, we conducted a brief case study of an employer-based online internship program in order to provide an employer's account of their experiences with online internships during the COVID-19 pandemic (Yin, 2017). An employer was identified through informal requests for potential study sites via the first author's professional network, and the name of a Human Resources (HR) professional was provided from a colleague. After an initial email inquiry from the first author, the employer agreed to participate in the study, which involved a 45-minute interview. The interview was unstructured and focused on their company's experiences with online internships, especially how they were designed, implemented, and then conducted during 2020. Detailed notes were taken during the interview, and these notes were used as the source material for the brief write-up of this firm's online internship program included in this report. In addition, the employer shared documents and a promotional video about the internship program. These materials also were used to develop the account included in this report.

V. Results from Case 1: Survey Study of 11 Colleges and Universities

In this section, we report results from our second case study that features 9,964 responses from 11 colleges and universities that participated in our pilot National Survey of College Internships (NSCI) project. Results are reported according to the three Internship Scorecard categories: (1) prevalence, format, and purpose, (2) program quality, and (3) equitable access.

Prevalence, Format, and Purpose

The first Internship Scorecard category pertains to basic aspects of internships, including their prevalence among the study sample, their format, and then the reasons why students are pursuing them.

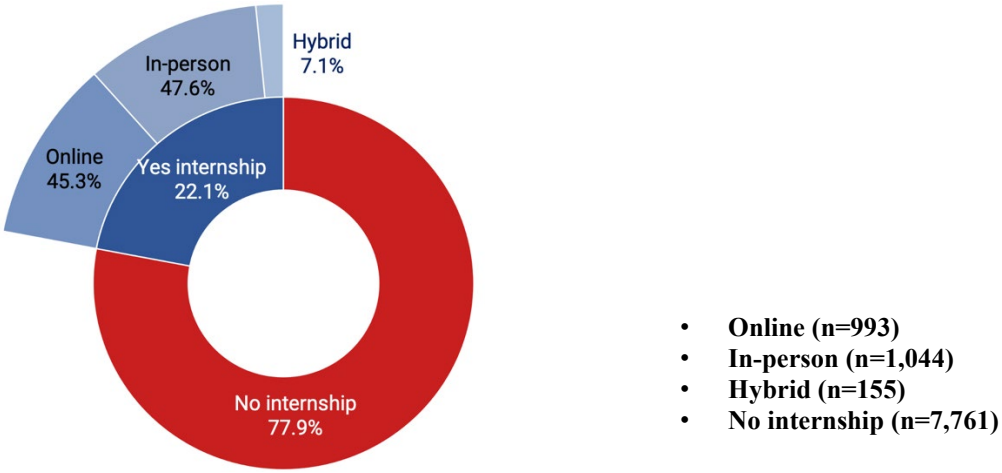
Prevalence of Internship Participation by Student and Institutional Characteristics

Students answered about their internship experiences (or lack thereof) during the previous 12-month period prior to the date they took the survey (November 2020–March 2021). It is worth noting that the 12 months prior to data collection encompasses the entire COVID-19 pandemic. Results showed that 22.1% (n=2,203) of the students in our study sample reported

having taken an internship and 77.9% (n=7,761) did not have an internship experience. These results on internship participation are similar to our 13-institution dataset for the College Internship Study (from 2017–2019) where interns and non-interns reflect 30% and 70% of that study sample, respectively; these more recent data do indicate a decline in overall internship participation.[3]

For this newer 11-campus dataset we asked about the modality of internships. Results indicate that 45.3% (n=993) of the students in our sample had taken an online internship, 47.6% (n=1,044) had taken an in-person internship, and 7.1% (n=155) had what we call a "hybrid" internship, as their programs were changed mid-internship from an in-person to virtual experience due to the COVID-19 pandemic. The hybrid internship will be interesting to study in the future, to determine if these types of programs will become a permanent part of the internship landscape (see Figure 1).

Figure 1. **Total number of interns (by modality) and non-interns during the COVID-19 pandemic**



Here, we report participation in internships overall and then by modality (online, in-person and hybrid) across key demographic (i.e., race, gender, first-generation status, international student status, income level, employment status, and place of residence) and academic characteristics (i.e., major, GPA, and enrollment status) (see Table 6).

[3] These data can be accessed and queried via an interactive data dashboard at our Center's website: http://ccwt.wceruw.org/dataExplorer/internshipStudy.html

***Table 6*. Participation in internships from 11 universities by student characteristics**

Participation in internships		**Yes (%)**		**No (%)**
Total		2,203 (22.1)		7,761 (77.9)
Internship type	Online (%)	In-person (%)	Hybrid (%)	
	993 (45.3)	1,044 (47.6)	155 (7.1)	
Gender				
Female	689 (71.6)	712 (68.9)	112 (73.7)	5,385 (71.6)
Male	273 (28.4)	321 (31.1)	40 (26.3)	2,141 (28.5)
Race* **				
Asian	186 (18.8)	95 (9.2)	16 (10.4)	1,051 (13.6)
Black	35 (3.6)	28 (2.7)	4 (2.6)	449 (5.8)
Hispanic	75 (7.6)	57 (5.5)	8 (5.2)	677 (8.7)
White	611 (61.9)	774 (74.6)	115 (74.7)	4,985 (64.3)
Two or more races	68 (6.9)	61 (5.9)	9 (5.8)	428 (5.5)
Others	12 (1.2)	22 (2.1)	2 (1.3)	163 (2.1)
First-generation status*				
First-generation students	152 (15.4)	206 (19.8)	33 (21.3)	1,890 (24.4)
Continuing-generation students	835 (84.6)	835 (80.2)	122 (78.7)	5,865 (75.6)
Enrollment type				
Full-time	924 (93.1)	956 (91.6)	138 (89)	7,052 (90.9)
Part-time	69 (7)	88 (8.4)	17 (11)	709 (9.1)
Employment type				
No employment	365 (37.9)	380 (38)	51 (34.2)	1,649 (23.3)
Part-time employment	558 (58)	563 (56.3)	93 (62.4)	4,660 (65.8)
Full-time employment	39 (4.1)	57 (5.7)	5 (3.4)	773 (10.9)
Caregivers' income level* **				
Low-income	202 (24.2)	234 (25.5)	29 (20.9)	1,969 (29.9)
Middle-income	312 (37.3)	373 (40.6)	55 (39.6)	2,766 (42)
Upper-income	322 (38.5)	311 (33.9)	55 (40)	1,845 (28)
Major* **				
Arts & Humanities	90 (9.1)	77 (7.4)	16 (10.8)	718 (9.5)
Biosciences, Agriculture, & Natural Resources	70 (7.1)	143 (13.7)	11 (7.4)	1,154 (15.2)
Business	200 (20.1)	181 (17.5)	30 (20.3)	989 (13.1)
Communications, Media, & Public Relations	93 (9.4)	37 (3.6)	12 (8.1)	334 (4.4)
Education	16 (1.6)	41 (4)	3 (2)	380 (5)
Engineering	181 (18.4)	227 (21.7)	26 (17.6)	1,023 (13.5)
Health Professions	41 (4.2)	128 (12.3)	10 (6.8)	1,139 (15)
Physical sciences, Math, & Computer Science	104 (10.5)	35 (3.4)	9 (6.1)	520 (6.9)
Social Sciences	145 (14.7)	88 (8.5)	18 (12.2)	845 (11.2)
Social Service Professions	9 (0.9)	45 (4.3)	9 (6.1)	201 (2.7)
Other majors (not categorized)	36 (3.7)	35 (3.4)	4 (2.7)	275 (3.6)
Grade Point Average (GPA)* **				
	3.6 (0.4)	3.5 (0.5)	3.6 (0.4)	3.4 (0.5)

Note. * significant difference between groups at the 0.05 level; ** significant difference between groups at the 0.01 level; *** significant difference between groups at the 0.001 level. Statistical significance was reported for the comparison of intern groups with different modalities (online/in-person/hybrid). Percentage in parenthesis. For Grade Point Average (GPA), standard deviation in parenthesis. Due to missing data and rounding, detail may not sum to total or 100%. Due to small sample sizes and for purposes of analysis, we focus on female and male students. For the same reasons, we combined some racial and ethnic groups such as Alaskan Americans or Hawaiians in 'others' category. Respondents who indicated 'I don't know or not applicable' in terms of caregivers' incomes were removed from the data sets for comparison between different caregivers' income groups.

For respondents from the 11 institutions in our study, differences in internship participation overall were significantly related to students' race, first-generation status, employment type, caregivers' income level, and major. Similarly, we found that participation in different types of internships (online, in-person, or a hybrid experience) were also significantly different depending on these same demographic attributes of students, with the exception of student employment status. These results highlight the fact that participation in college internships in general, and in online internships in particular, is not equally distributed across student demographics, and that in our sample these differences are not due to chance.

In examining gender differences in internship participation, we found that 68.6% (n=1,513) of the students who took an internship in our study were female, and of the 962 students whose internship was online, 71.6% (n=689) were female. These differences (with male students) were not statistically significant; it is also important to note that the study sample was predominantly female (69.3%, n=6,907).

Next, differences in internship participation—both overall and by modality—with respect to race and ethnicity were statistically significant at the 0.001 level. First, overall participation did vary significantly by student race and ethnicity, with White students representing the majority of student interns. White students were overrepresented in in-person internships in comparison with other race and ethnicity groups, while our analysis found that Asian American students were overrepresented in online internships. We also found that first-generation students were underrepresented in internships, both with respect to overall participation (a significant difference with continuing-generation students at the 0.001 level) or by internship modality (at the 0.05 level).

Our analysis also found that full-time students took internships at a higher rate than their part-time peers, but we did not detect statistically significant difference in overall internship participation among full-time and part-time students (i.e., this difference could be attributed to chance). Similarly, while the share of full-time students was higher for both in-person and online intern groups than that of part-time peers, such differences were not statistically significant.

Interestingly, student employment type was an important factor in explaining the variation in the internship participation overall, yet not in the participation detailed by internship modality. Students who worked full-time or part-time were substantially underrepresented in the intern group, and those who did not work were overrepresented at the 0.001 level. In contrast, there was little statistically significant variation in terms of the share of online/in-person/hybrid interns by

their employment status. In addition, students who had participated in internships had a considerably higher GPA at 3.6 than non-interns at 3.4 (at the 0.001 level). By internship modality, the mean GPA of online and hybrid interns was 3.6 (*SD*=0.4), which is significantly higher than in-person interns at 3.5 (*SD*=0.5). A one-way analysis of variance (ANOVA) showed that the difference in mean GPA held for different types of internships (at the 0.001 level).

We then delved deeper into three student characteristics that have a prominent role in the internship literature: student major, place of residence, and their caregivers' income. Here we provide in-depth analyses of these three variables.

Participation in Internships by Caregivers' Income. Using the income categories of low-income (caregivers' income < $39,999), middle-income ($40,000–$119,999), and upper-income (> $120,000) (Snider, 2020), we examined whether students' participation in internships varied by their caregivers' income level. We found that students from an upper-income background (36.3%, n=691) were overrepresented in the intern group, whereas interns from low-income families (24.7%, n=470) or from middle-income families (39%, n=742) were underrepresented. We found these differences were statistically significant at the 0.001 level.

With respect to online internships, the share of online interns from low-income backgrounds, at 24.2% (n=202), was lower than the share of their peers from upper-income backgrounds (38.5%, n=322) or middle-income backgrounds (37.3%, n=312). Interestingly, while the number of in-person interns from low-income backgrounds (25.5%, n=23) or middle-income backgrounds (40.6%, n=373) was slightly higher than for online interns, the share of in-person student interns from upper-income backgrounds was lower at 33.9% (n=311). For a hybrid type, middle-income students and upper-income students accounted for 39.6% (n=55) and 40% (n=55), respectively, followed by low-income students (20.9%, n=29). We found these differences were statistically significant at the 0.001 level. Nevertheless, these results should be interpreted with caution given that this survey item (i.e., caregivers' income) had a high level of missing responses from online interns and non-interns.

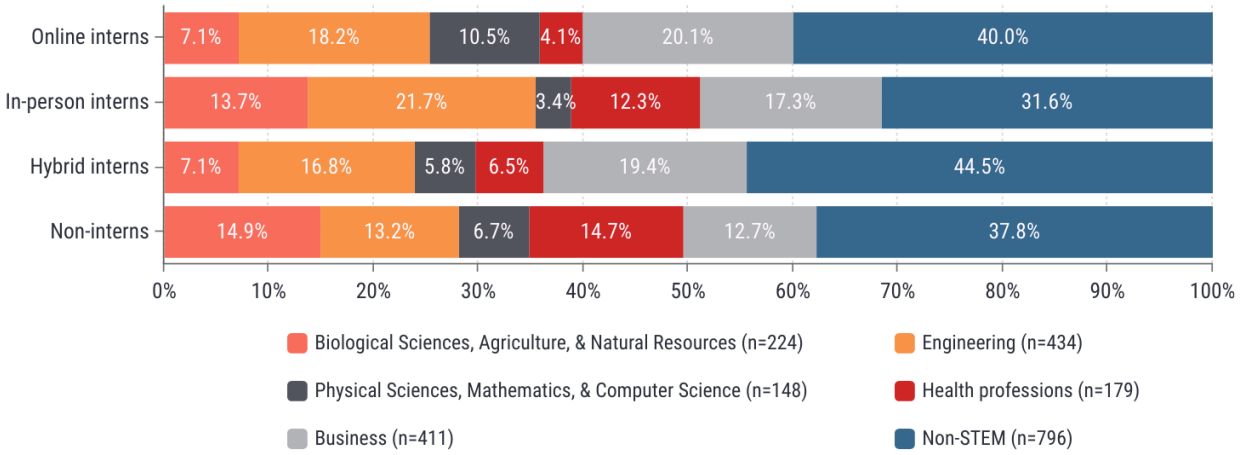
Participation in Internships by Major. Next, we examine differences in internship participation rates (both overall and by modality) by student majors. Due to small sample sizes for certain major groups and for purposes of analysis, we categorized students into six major clusters. The four STEM-related major clusters include biosciences, agriculture, and natural resources (BAN); engineering; physical sciences, math, and computer science (PMC); and health professions. The other two cluster APAs were: non-STEM, and business.

With respect to overall participation in internships, students majoring in engineering (19.8%, n=435) and business (18.7%, n=412) were overrepresented in the overall intern labor force. In contrast, students in health professions (8.2%, n=181) and BAN (10.4%, n=228) took internships at much lower rates. Students in non-STEM and PMC accounted for 36.3% (n=799) and 6.7% (n=148) of the intern labor force, respectively. These were statistically significant differences at the 0.001 level. For different types of internships, we found that students in non-STEM (40%,

n=397), business (20.1%, n=200) or PMC (10.5%, n=104) majors were overrepresented in online internships. Hybrid internships followed a similar pattern, while in-person internships were most pursued by students in engineering (21.7%, n=227), BAN (13.7%, n=143), or health professions (12.3%, n=128). We found these differences were statistically significant at the 0.001 level.

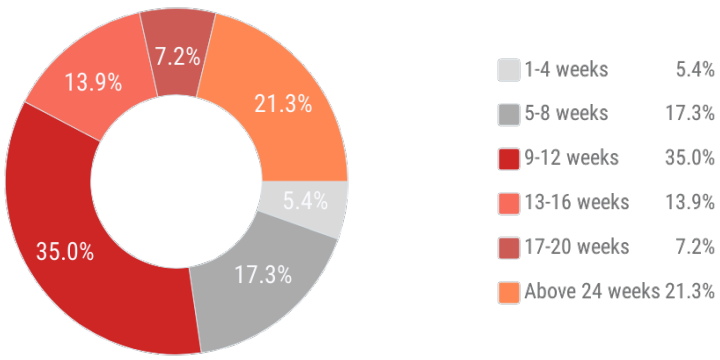
These results indicate that for STEM students, who are of particular interest to the National Science Foundation, online internships were not prevalent in 2020 with the exception of students in PMC majors. These results raise questions about viability of online experiences for students in STEM disciplines. In contrast, engineering students have high rates of internship participation overall (regardless of modality), while BAN and health-related majors do not, indicating different levels of participation in internships across STEM disciplines. In interpreting these results, it is important to recognize that requirements for internships or practicum vary across majors, which suggests that some observed differences in internship participation may be due to programmatic and/or accreditation-related requirements.

***Figure 2*. Participation in internships by major (n=9,953)**



Duration of Online Internships. As shown in Figure 3, approximately one in five students in our survey did relatively short-term online internships of up to 8 weeks, with 5.4% (n=52) having internships lasting 1–4 weeks, and 17.3% (n=167) having 5–8-week experiences. The relatively low number of students taking very short internships, which some call "micro-internships" that can last as short as 4–40 hours, indicates that this type of position was uncommon among the study sample. The majority of students took internships lasting between 9–16 weeks (48.9%, n=471), which encompasses the time frame similar to a traditional summer internship of 3–4 months.

Figure 3. **Duration of internships**



Sector of Online Internships. Another important element of an internship is the sector of the employer where the student is interning. For students in this sample, the majority of online interns did their internships with for-profit organizations (58.4%, n=579), compared to online interns with non-profit organizations (30.8%, n=305) or government agencies (10.9%, n=108).

Students' Reasons or Purpose for Taking Online Internships. Finally, we examine the reasons that students reported for taking an internship. For students taking online internships, gaining experience in a specific career that they planned on pursuing as their chosen profession was the most commonly reported reason for taking an internship (66.7%, n=662); fewer used the internship to explore different career options (26%, n=258). Some students indicated an internship requirement for graduation as an important reason for participating in an internship (2.2%, n=22).

Features of Quality

Next, we turn to one of the most important questions regarding internships: quality. While quality can be defined in a variety of ways, here our aim is not to generate or advance a definitive account of internship quality or efficacy, but instead to focus on several indicators that are supported by the research literature as factors strongly related to student satisfaction and developmental outcomes. We also aim to demonstrate that mere participation in an internship is no guarantee of quality or impact, just as sitting in a lecture hall does not guarantee learning. Certain actions and conditions must be met in order for the student to be in a position to learn and grow.

Presence of Learning Goals for Interns

Our first indicator of quality was whether students were provided with a written document that outlined the learning goals and activities for their internship, either by their academic advisor or their internship host organization. Much like a course syllabus, these documents tend to specify the precise goals for the experience, how the internship will bridge academic concepts with real-world applications, expectations for the student and supervisor, and so on. For online

interns, 61.1% (n=607) of students were provided with learning goal documents, which was slightly higher than for in-person (56.5%, n=589) or for hybrid interns (55.5%, n=86).

While these differences were not statistically significant, the fact that 40% or more interns lack a learning goal statement from their employer and/or academic advisor is a cause for concern, reflecting a potentially unfocused or unintentional approach to the internship.

Nature of Tasks Performed by Interns

Next, we turn to the nature of the work done by student interns at their internship, with less than half of all online interns (46%, n=457) reporting that they mostly worked on their own project(s) independently, with relatively little (or peripheral) support from a supervisor. Nearly one in three online interns indicated having executed tasks that required high skills under close supervision (31.9%, n=316) and one in five indicated having performed relatively low-skill tasks after being trained by their supervisor (19.4%, n=193).

In-person interns characterized their tasks differently than online interns. For example, two in five in-person interns (40%, n=421) said their tasks demanded high skills with the guidance of their supervisor. One in four in-person interns recognized their tasks as autonomous (25.4%, n=264) or low-skill (25.7%, n=267). The majority of hybrid interns performed high-skill tasks with supervision, indicating they mostly engaged in relatively high-skill tasks after being trained by their supervisor, who would then review and approve their work (40.9%, n=63). An additional two in five hybrid interns (37.7%, n=58) described their tasks as autonomous and one in five of them (18.2%, n=28) described tasks as low-skill. Overall, job shadowing or observing respondents' supervisors perform tasks, was rated as least prevalent for online interns (2.7%, n=27), in-person interns (8.6%, n=89), and hybrid interns (3.3%, n=5). We found that there were significant differences in the type of tasks by the modality of internship (0.001 significance level).

Supervisor Quality

One of the most important predictors of intern satisfaction and positive outcomes is the quality of their supervisor (e.g., McHugh, 2017). On average, interns in our study sample reported having received a high level of supervisor support. The mean scores of the perceived supervisor support, which captures the degree to which a supervisor exhibits care and concern for the intern, were similar across all three groups (on a five-point Likert scale, with 1= not at all to 5=a great deal): 4.2 for online interns (*SD*=0.9), in-person interns (*SD*=0.9), and hybrid interns (*SD*=1).

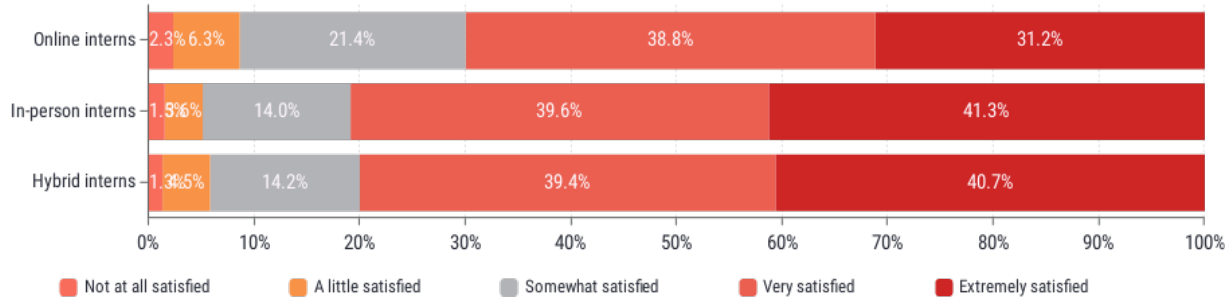
Additionally, both in-person interns and hybrid interns continued to report having had a relatively high quality of mentoring, which refers to how well a supervisor assists the intern in improving their performance (*M*=3.9, *SD*=1.1 for in-person interns; *M*=3.9, *SD*=1 for hybrid interns). While these were higher scores than that of online interns (*M*=3.8, *SD*=1), the gap between different intern groups was statistically insignificant.

These results are promising for online internships, which some observers feared would be particularly weak with respect to intern-supervisor dynamics, given the absence from the physical job site, and the camaraderie that can form in a physical workplace (e.g., McGregor, 2020).

Satisfaction with the Internship

The majority of online interns indicated that the internship was satisfactory, including 31.2% (n=309) who were 'extremely satisfied,' and 38.8% (n=384) who were 'very satisfied.' However, in-person or hybrid interns showed higher satisfaction levels than their online peers, with 41.3% (n=430) of in-person interns and 40.7% (n=63) of hybrid interns indicating that they were 'extremely satisfied' and 39.6% (n=384) in-person interns and 39.4% (n=61) hybrid interns indicating that they were 'very satisfied.' The mean scores of the perceived internship satisfaction, which capture the degree to which a respondent was satisfied with the internship experience, were significantly different by internship modalities (on a five-point Likert scale, with 1= not at all satisfied to 5=extremely satisfied): 3.9 for online interns (*SD*=1), 4.2 for in-person interns (*SD*=0.9), and 4.1 for hybrid interns (*SD*=0.9). In particular, a 10-point difference between online and in-person internships at the upper levels of satisfaction is a cause for concern.

Figure 4. **Satisfaction with the internship**



Development of "21st-Century Skills"

Overall, in-person interns indicated more often than their online or hybrid counterparts that their internship experiences reinforced four "21st century skills": teamwork, problem-solving skills, communication skills, and leadership. For example, the distinctive difference between them was notable in the area of teamwork, with 50.1% (n=524) of in-person interns reporting "extremely often" or "very often," yet only 36.9% (n=365) of online interns and 42.9% (n=64) of hybrid interns. Similar patterns emerged in the percentage of interns indicating their internship provided opportunities to develop communication skills, problem-solving skills, or leadership. One-way ANOVA results showed that mean differences were statistically significant at the 0.05 level for the development of communication skills, and at the 0.001 level for all other skills.

Development of a Professional/Social Network From the Internship

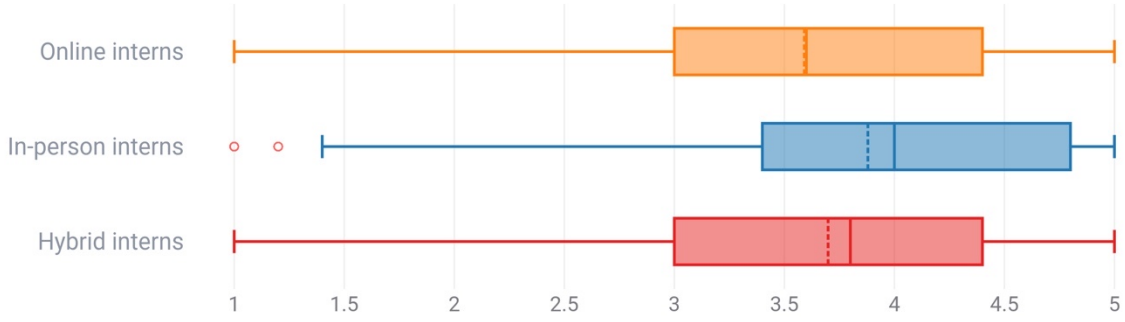
Another potential benefit of an internship is the development of students' social and professional networks, which can lead to important job tips or opportunities in their future. As the COVID-19 pandemic disrupted the internship world in 2020, one of the casualties of in-person internships was thought to be these networks (McGregor, 2020). Our data show that students with the hybrid internship experience (91.6%, n=141) reported the highest rate of feeling that their internship had expanded their professional network, followed by in-person interns (90.2%, n=935) and online interns (86.5%, n=852), with all differences statistically significant at the 0.05 level.

Developmental Value of the Internship

Our final indicator of internship quality is the degree to which a student intern considers their experience to be developmentally productive with respect to their academic and career goals. Using validated scales from the research literature, we asked students to rate their internships on a scale from 1 to 5 regarding how much their internship did in fact provide "developmental value" for their academic and career aspirations.

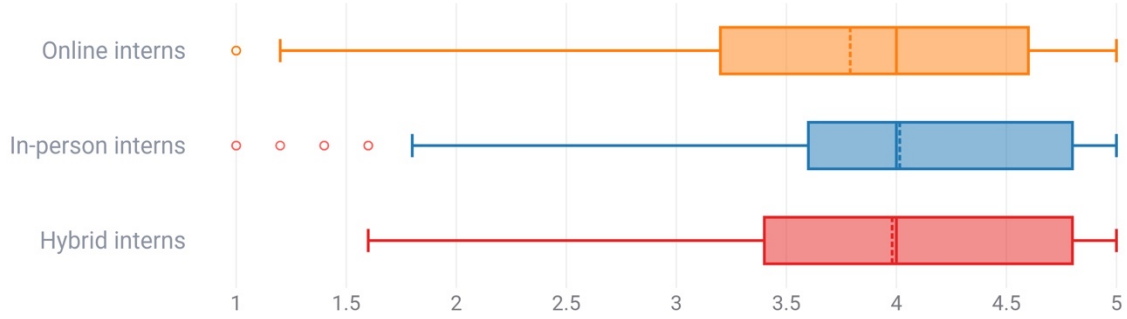
As shown in Figure 5, the average academic value of an internship was 3.9 (*SD*=1) for in-person interns, which is higher than online interns who rated their experience at 3.6 (*SD*=1) and hybrid interns at 3.7 (*SD*=1). This suggests that those who experienced in-person internships felt such an opportunity helped them to apply their course learnings to real-world situations or to identify gaps in their academic knowledge to a greater extent than those who took online or hybrid internships.

***Figure 5*. Perceived internship academic developmental value (n=2,193)**



In terms of the career developmental value of the internship, in-person interns (*M*=4, *SD*=1) and students with a hybrid internship experience (*M*=4, *SD*=0.9) gave more favorable ratings than online interns (*M*=3.8, *SD*=0.9). These differences for both academic and career developmental values were all statistically significant at the 0.001 level.

***Figure 6*. Perceived internship career developmental value (n=2,193)**



Note. Solid line indicates a median (the middle of each group) and dotted line indicates a mean (average of each group).

Equitable Access

Issues of equity and access—the final component of our Internship Scorecard discussion—are rarely included in analyses, research, or datasets on college internships. Given long-standing concerns about the limited access to internships (especially unpaid positions) by low-income and/or first-generation students, the barriers to internships faced by working students, and persistent racism and other forms of discrimination in the workplace, these issues must be considered in any conversation about the role and value of internships in higher education (Curiale, 2009; Hora et al., 2020; Quillian et al., 2017).

Before reporting data on compensation, sources of information about internship opportunities, the presence of anti-discrimination policies, and student experiences with discrimination, it is important to note that access to internships is a core indicator in the Internship Scorecard. In our survey, students who did not take an internship are asked if they had in fact wanted to, and if so, what prevented them from taking a position. As these questions are not specific to online internships, we do not report these data in this report, but of the 7,761 students who did not take an internship, 68.2% (n=5,294) had wanted to; the most common obstacles were the need to work a paid job; a heavy course load; limited opportunities; and low pay (see also Hora et al., 2020).

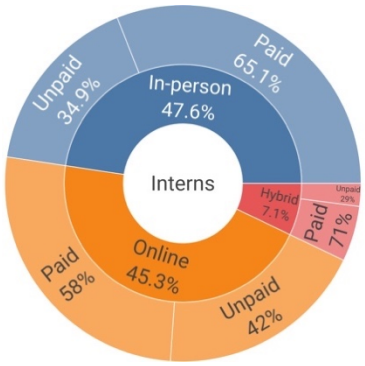
Compensation

One of the first indicators for equity and access is compensation. We and other internship scholars contend that all internships should be paid, even if technically a position complies with the legal requirements of the Fair Labor Standards Act (FLSA) and can be legally unpaid. Given

the financial challenges facing college students today, which range from food insecurity, considerable debt, or even homelessness, compensation is essential to ensure that all students, regardless of family wealth, can pursue an internship.

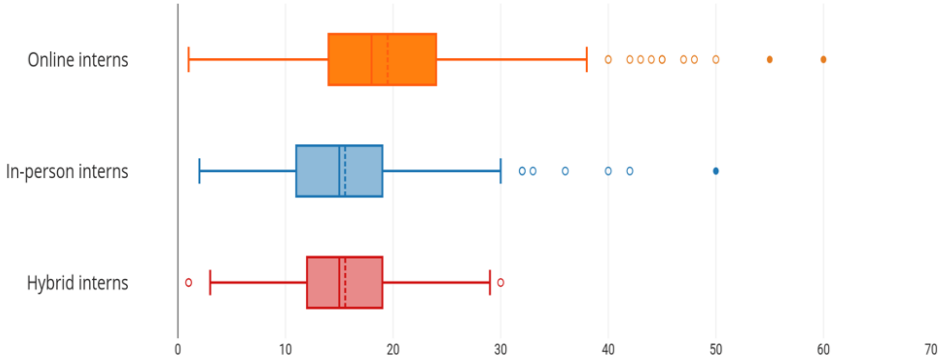
Overall, nearly three in five interns indicated that their internships were paid positions (62.3%, n=1,364). With respect to compensation by internship modality, hybrid forms of internships had the highest rate of paid positions (71%, n=110), followed by in-person interns (65.1%, n=679) and online interns (58%, n=575). We found a statistically different likelihood of getting paid between different intern groups (0.001 significance level). This is a troubling result, as one potential benefit of online internships is to increase access for students who cannot afford to relocate to expensive cities; if the online position is unpaid, it is not necessarily more available or accessible to low-income students.

***Figure 7*. Paid interns by internship modality (n=2,190)**



An interesting finding regarding compensation is that the average hourly wage for online interns was $19.5. This is considerably higher than the average hourly wage of in-person ($15.2) or hybrid interns ($15.5). The discrepancy in hourly compensation among paid interns was statistically significant at the 0.001 level.

***Figure 8*. Internship hourly wages ($) by internship modality (n=1,349)**



Source of Information About Internship Availability

Next, one of the ways that internships can be inaccessible to students, especially those at campuses with limited resources for sharing internship opportunities and/or those from under-privileged and professionally networked backgrounds, is that positions are not openly advertised. In our study sample, more than half of all respondents (52.5%, n=1,149) indicated that they initially learned about their internship opportunity through informal networks such as professors, families, and friends. These informal and inter-personal sources were used by 42.9% (n=426) of online interns, 60.6% (n=631) of in-person interns, and 59.4% (n=92) of hybrid interns, which underscores the importance and influence of personal networks or what some call social capital.

More public and widely available and accessible sources of information used by students in our study include public advertisements and/or forums including job boards, LinkedIn, and company websites, which were used by 30.7% (n=671) of all students across internship types. This type of information was also accessed by 39.5% (n=392) of online interns, 23% (n=239) of in-person interns, and 25.8% (n=40) of students in hybrid positions. Direct recruitment by an employer for the position was the least used approach by online interns (17%, n=169), in-person interns (15.5%, n=161), and hybrid interns (14.8%, n=23). These differences in how students taking different types of internships learned about their positions varied by respondents' internship modality at the 0.001 significance level.

Language Provided About Anti-Discrimination Policies

Considering the continued prevalence of hiring and workplace discrimination in the United States, we asked students if their intern hosts provided an explicit statement about non-discriminatory hiring on the basis of race, gender, sexuality, and/or disability status in the internship posting. The online interns in our study sample reported the presence of these statements at the highest rate (59.2%, n=588), followed by hybrid interns (54.8%, n=85) and in-person interns (52.9%, n=551). Approximately one in three respondents were 'not sure' about the presence of these statements, and these differences among groups of interns were statistically significant at the 0.01 level. While it is plausible that many students simply did not see these statements on the original internship posting, it is incumbent upon employers (and postsecondary institutions who share these postings) to make clear to interns that their workplace is an inclusive and equitable environment.

Experiences of Discriminatory Behavior

The final indicator for equity and access pertains to direct acts of discrimination that students may unfortunately have experienced during their internship. A relatively small percentage of respondents indicated experiences of discriminatory behavior during the internship: 2% (n=20) for online interns, 3.7%, (n=39) for in-person interns, and 3.2% (n=5) for interns taking a hybrid position. There was little difference in reporting having felt discriminated against during their internship based on their race, gender, sexuality, disability status, and/or other personal attributes. However, while these numbers are fortunately small, it is troubling that 64 students experienced discriminatory behaviors first-hand during their internship.

Observations About 2020: COVID-19 Pandemic and Black Lives Matter Protests

Our final set of results for Case 1 of the 11 colleges and universities in our study, pertains to observations made by students about two of the defining issues of 2020: the COVID-19 pandemic and the Black Lives Matter protests. While this study is focused on online internships, these two forces disrupted society for most college students. Here, we briefly report findings from survey items on the two topics.

Students' Experiences With COVID-19

Nine in ten respondents reported the COVID-19 pandemic had affected their career goals and plans: 94.9% (n=938) for online interns; 89.3% (n=927) for in-person interns; and 91% (n=141) for students with a hybrid internship. Among a variety of career plans affected due to pandemic, the most widely selected area was the negative impact on developing professional networks, with online interns reporting the highest rate of challenges in networking with professionals at 72.2% (n=713), compared with hybrid interns (67.1%, n=104) and in-person interns (62.9%, n=653). Another serious challenge was the loss of career opportunities, reported by 59.9% (n=592) of online interns, 55.2% of in-person interns (n=573), and 51.6% (n=80) of hybrid interns.

Of all of the impacts of the pandemic, surprisingly, respondents agreed the least with the statement that they have experienced increased feelings of stress, anxiety, and/or hopelessness. These responses in the affirmative on this impact ranged from 20% (n=31) for hybrid interns to 30.4% (n=315) for in-person interns. Students' perceptions on the impacts of COVID-19 significantly differed by the internship modality at the 0.05 level for the loss of career chances, at the 0.001 level for the disruption in developing professional network, and at the 0.01 level for all other aspects.

Observations About the Black Lives Matter Protests in Summer 2020

Overall, three in ten respondents across all intern groups indicated that their career goals and plans had been influenced by the recent civil unrest and activism around systematic racism: 32% (n=307) for online interns; 33.2% (n=338) for in-person interns; and 31.3% (n=47) for hybrid interns. One way the protests impacted their lives and goals was heightened anxiety or fear, with 15.9% (n=162) of in-person interns, 13.1% (n=126) of online interns, and 10.7% (n=16) of hybrid interns indicating this impact, followed by disruptions in developing professional networks, and difficulties in navigating different career options. The gap in the perception of the impacts among the three intern groups was significant at the 0.05 level for the challenges related to the navigation of different career options and development of professional skills, and at the 0.01 level for the loss of career opportunity. Unfortunately, without follow-up interviews it is not possible to discern precisely how the Black Lives Matter protests and related awareness about racism impacted these students. This topic should be explored in future research.

VI. Results From Case 2: Mixed-Methods Study of Two Online Internship Networking Platforms

In this section we report findings from analyses of both survey and interview data from the online internship networking platforms (OINP) included in the study. When reviewing these results, it is important to recall that students who register on these vendors' websites *are not* guaranteed an online internship but instead gain access to employers' position openings (as well as additional resources for their career development) and must then apply for these positions in competition with other students on the website. In addition, the survey data reported here only represent OINP-B's student registrants, as the response rate from students registered on OINP-A's website was extremely low and thus did not warrant inclusion in this report. However, interviews with students from both OINP-A and OINP-B are reported in this section.

First, we report survey results for students who registered with OINP-B's service (n=183), followed by results from thematic analyses of interviews with students who registered with both OINP-A (n=24) and OINP-B (n=21).

Data from surveys completed by students registered with OINP-B (n=183) are reported according to the three Internship Scorecard categories: (1) prevalence, purpose, and format, (2) program quality, and (3) equitable access.

Survey Results: Prevalence, Format, and Purpose of Internships for OINP-B Registrants

The first Internship Scorecard category pertains to some basic aspects of internships including their prevalence among the study sample, their format, and then the reasons why students are pursuing them.

Prevalence of Internship Participation by Student and Institutional Characteristics

Of the 183 students registered with OINP-B's service who answered our survey, 120 (66%) had successfully completed an internship with an employer featured on OINP-B's website. As will be reported in the section outlining results from analyses of interview data, the actual participation rate for student interviewees registered with both OINPs is less than 50% (8% for OINP-A, 42% for OINP-B).

One explanation for this phenomenon from staff at one OINP is that demand from students was much higher than available positions in 2020, and that successful students tended to be persistent and apply to multiple positions before being selected. Further, we were told that some students simply did not present well in terms of incomplete profiles and poor answers to questions on intake surveys, and that employers were particularly sensitive to evidence of good communication skills and work ethic on these profiles. In addition, this OINP provider noted that supply was likely constrained by the relative novelty (and thus scarcity) of online internships for many employers that pre-dated the pandemic and was exacerbated by the sudden shift from in-person to online modalities. Finally, some colleges were seen as being highly successful in

letting their students know about online internships, with active campaigns with employers and alumni partners, while others were more passive and failed to engage these audiences.

The other OINP addressed this issue of relatively low participation by stating that in the early stages of their company's development, they realized that there were not enough internship opportunities from employers, while there was considerable pent-up demand from students. This OINP recognized that employers needed help in building their capacity to take on new interns, and so they prioritized efforts to help employers develop new online internship programs. Further, representatives from this OINP underscored the fact that they have a "platform for interns but do not place them in internships," as they also strive to help students with their professional development over time, with an important goal of helping underrepresented students in particular achieve their career goals.

As a result of these findings of relatively low participation rates in the OINPs and the apparent causes, we hope that future researchers examining the role of OINPs compare findings with 2020—a pandemic year with potentially heightened demand amidst a low supply—and data from 2021 and onwards, while also investigating the impacts of other non-internship services provided by these firms.

With respect to our survey data from OINP-B, the characteristics of the 183 students who responded to our survey are depicted in Table 7, with a focus on certain demographic (i.e., gender, race, first-generation status, international student status, caregivers' income level, and student employment status) and academic characteristics (i.e., enrollment status, major, and GPA). Please note that among this entire study sample, 18.6% were White and 46.5% Asian American, which is different from the broader U.S. population of college students with 49% White and 6.4% Asian American (IPEDS, 2019).

Table 7. **Participation in OINP-B's online internships by student characteristics (n=183)**

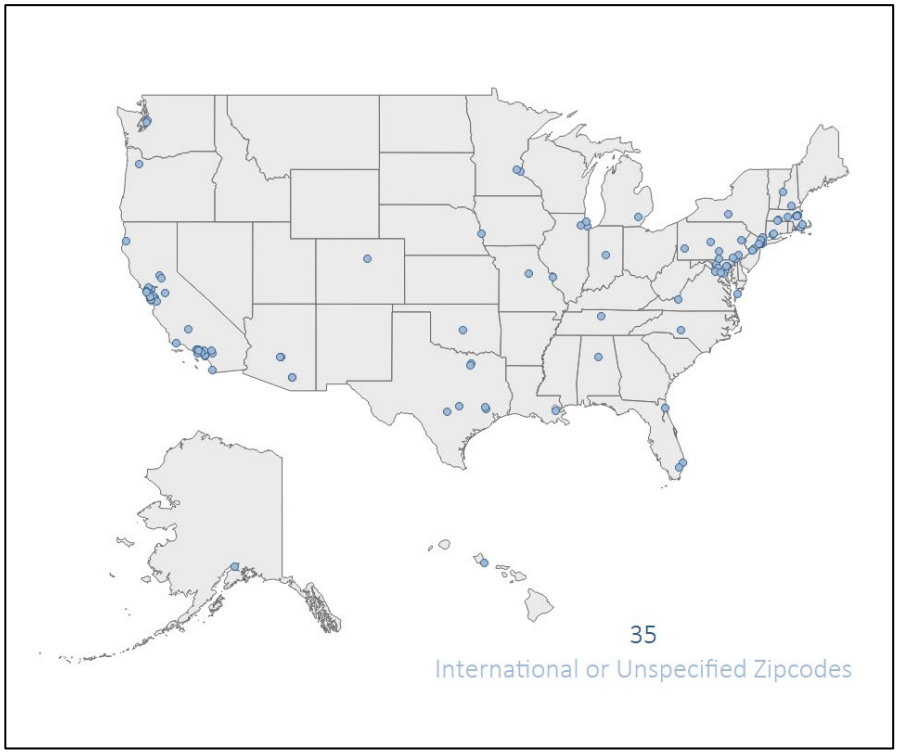
Participation in online internships		Yes (%)	No (%)
Total		120 (65.6%)	63 (34.4%)
Gender			
	Male	44 (37.3%)	32 (52.5%)
	Female	74 (62.7%)	29 (47.5%)
Race			
	Asian	60 (50%)	25 (39.7%)
	Black	13 (10.8%)	12 (19.1%)
	Hispanic	8 (6.6%)	2 (3.2%)
	White	21 (17.5%)	13 (20.6%)
	Two or More Races	9 (7.5%)	5 (7.9%)
	Others	9 (7.5%)	6 (9.5%)
First-generation status			
	First-generation students	43 (35.8%)	17 (27%)
	Continuing-generation students	77 (64.2%)	46 (73%)

International student status			
	International students	37 (30.8%)	19 (30.2%)
	Non-international student	83 (69.2%)	44 (69.8%)
Caregivers' income level			
	Low-income	48 (40%)	26 (41.9%)
	Middle-income	47 (39.2%)	18 (29%)
	Upper-income	25 (20.8%)	18 (29%)
Employment status**			
	No employment	70 (58.3%)	38 (60.3%)
	Part-time employment	49 (40.8%)	18 (28.6%)
	Full-time employment	1 (.8%)	7 (11.1%)
Enrollment status			
	Full-time	108 (90%)	56 (88.9%)
	Part-time	12 (10%)	7 (11.1%)
Major			
	Arts & Humanities	13 (10.8%)	5 (7.9%)
	Biosciences, Agriculture, & Natural Resources	7 (5.8%)	4 (6.4%)
	Business	33 (27.5%)	14 (22.2%)
	Communications, Media, & Public Relations	2 (1.7%)	3 (4.8%)
	Education	1 (0.8%)	2 (3.2%)
	Engineering	19 (15.8%)	16 (25.4%)
	Health Professions	4 (3.3%)	1 (1.6%)
	Physical sciences, Math, & Computer Science	19 (15.8%)	15 (23.8%)
	Social Sciences	17 (14.2%)	0 (0%)
	Other majors (not categorized)	5 (4.2%)	3 (4.8%)
Grade Point Average (GPA)			
		3.5 (0.4)	3.6 (0.3)

Note. Percentage in parenthesis. Due to missing data and rounding, detail may not sum to total or 100%. **significant difference between groups at the 0.01 level, which indicates that a comparison between interns and non-interns for a particular variable (e.g., full-time employed students) was statistically significant. Due to the small sample size, other gender category (n=4) is not reported. For GPA, mean score and standard deviation (in parenthesis) are reported.

In addition, given the potential for online internships to "solve" the long-standing accessibility issue with internships, where students face both financial and geographic obstacles to participation (see Hora et al., 2020), in Figure 8 below we depict the zip codes of the residences for the 183 students who answered our survey.

***Figure 9*. Zip codes of the residences for OINP-B registrants**



As the figure indicates, a concentration of students who registered with OINP-B's website were located in the major metropolitan areas of San Francisco, Los Angeles, Washington, DC, New York City, and Boston, with others located throughout the rest of the country. It is also notable that 37 international students were in our sample. These data indicate that students who registered with OINP-B's website represented a wide range of states and countries, but that many of them tended to be clustered in major metropolitan centers rather than non-urban or rural areas that are sometimes the focus of accessibility efforts in higher education.

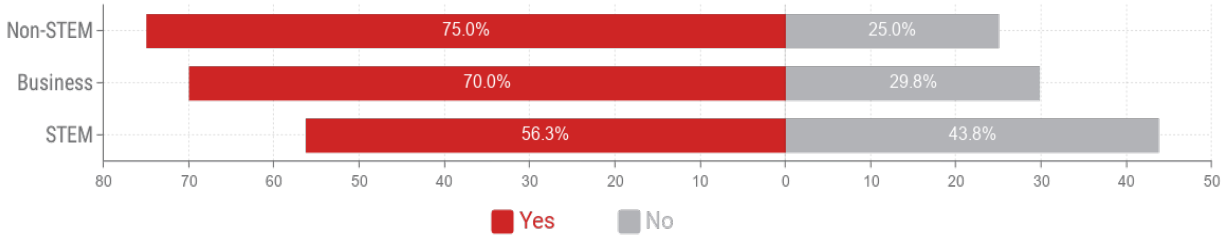
Next, we conducted statistical tests to examine if the differences between numbers of interns and non-interns for specific groups (e.g., male or female students, first-generation or continuing-generation students) were possibly due to chance, or if it is likely that the differences were not random and instead indicate significant differences.

While the results indicate differences between participation in online internships on the basis of gender (37.3% male versus 62.7% female online interns), the differences were not statistically significant. Similarly, despite differences in online internship participation on the basis of race, first-generation status, international student status, caregivers' income level, student employment status, major, and GPA, chi-square tests and independent T-tests on these variables show that differences were not statistically significant. For example, the mean GPA for those who participated in an online internship was 3.5 (*SD*=0.5) and for those who did not was 3.6 (*SD*=0.3), and the analysis showed that the differences in GPA between interns and non-interns were statistically insignificant.

In contrast, our analysis revealed that students' participation rates in an online internship significantly varied by their employment status (full-time, part-time, or no job). Perhaps unsurprisingly, students who had no current jobs or students working part-time had higher online internship participation rates (58.3% (n=70) for the former; 40.8% (n=49) for the latter)—compared with 0.8% of students working full-time (0.01 significance level). Given the potential for online internships to be more accessible than in-person internships for working students, since an online position would ostensibly have more flexibility built into the work schedule, this finding is counter-intuitive and merits future research into the relationship between online internships and student employment.

Finally, given the focus in this report on STEM disciplines (as this study was supported by the National Science Foundation), here we delve more deeply into variations in online internship participation by majors of the students. In Table 7, we report participation rates by 10 clusters of academic majors, but in Figure 10, we depict online participation rates (among students registered with OINP-B) in three categories: STEM, non-STEM, and business, due to the small sample size of some of the 10 clusters. The variation in participation rates across these groups, however, was not statistically significant.

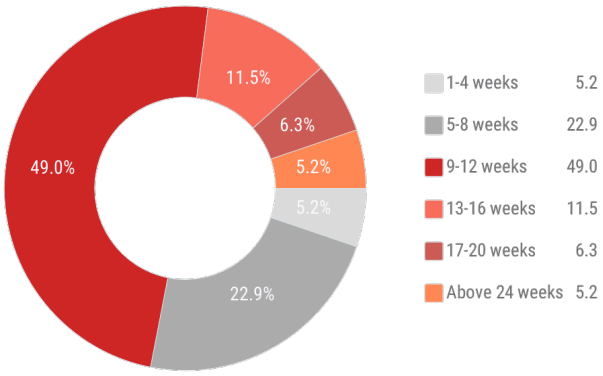
***Figure 10*. Participation in OINP-B's online internships for STEM majors**



Next, we report key elements of the format of online internships with OINP-B, to capture key structural features of the design of these experiences. The indicators reported here are selected from the Internship Scorecard framework (Hora et al., 2020) and for this case study include the duration and sector of students' internships, along with the reasons why they sought these experiences. We include the latter indicator due to the fact that not all students have the same reasons for pursuing an online internship and capturing variation in their intent is important to consider when interpreting other features (and outcomes) of their experience.

Duration of Online Internships. Half of the student respondents who successfully completed an internship with OINP-B (49%, n=47) reported that the duration of their online internship was 9–12 weeks, which is different from traditional in-person internships as reported by NSCI respondents (26.5%, n=266).

***Figure 11*. Duration of online internships (n=96)**



As Figure 11 shows, approximately one in five online interns (22.9%, n=22) worked for 5 to 8 weeks and one in ten (11.5%, n=11) for 13–16 weeks. The remaining categories for the duration of online internships include: 17–20 weeks (6.3%, n=6); less than 4 weeks (5.2%, n=5); and more than 20 weeks (5.2%, n=5). These results indicate that these online internships were decidedly not "micro-internships," which tend to last between 4–40 hours and are intended to be discrete, short-term projects.

Sector of Online Internship. Next, we report the organizational and industrial sectors represented by the employer hosts of these online internships. For the students in our study sample who completed an online internship, their positions were mostly at for-profit companies (63.5%, n=61), followed by non-profit organizations (33.3%, n=32) and government agencies (3.1%, n=3). Online interns also worked in 17 categories out of 20 industry fields presented in the survey, with most interns working with employers in the professional, scientific, and technical services fields (16.7%, n=16), educational services (15.6% or n=15), other services (except public administration) (13.4%, n=13), and management of companies and enterprises (11.5%, n=11). Of these online interns, 33.4% (n=33) took an internship online hosted by STEM-related employers including the health care field. Among students majoring in STEM and health care fields (n=38), half (n=19) had an online internship experience in the STEM and health care-affiliated fields.

Students' Reasons for Seeking an Online Internship. Finally, nearly seven in ten students from OINP-B who took our survey reported specific goals they hoped to gain during their online internship. These goals included the development of "soft skills"[4] (74.4%, n=99); adding to their resume to demonstrate experience (73.7%, n=98); developing new technical skills (72.9%, n=97); growing their professional networks (69.2%, n=92); exploring their career goals (69.9%,

[4] While considerable problems exist with this label, such as the inaccurate associations of "soft" with easy, feminine, or "mushy" competencies, in our survey we used this term due to its widespread usage among the general public.

n=93); and applying coursework to real-world situations (53.4%, n=71. In contrast, satisfying the requirements for graduation (11.35%, n=15) or getting a job at the internship host (22.6%, n=30) were the two least chosen goals from survey respondents.

These results indicate that students in our study sample from OINP-B are less interested in getting a job or satisfying institutional requirements, and are more focused on gaining skills, adding to their resume or CV, and expanding social networks. These motivations are important to consider for postsecondary professionals and employers as internship opportunities are designed, implemented and promoted.

Survey Results: Features of Online Internship Program Quality for OINP-B Registrants

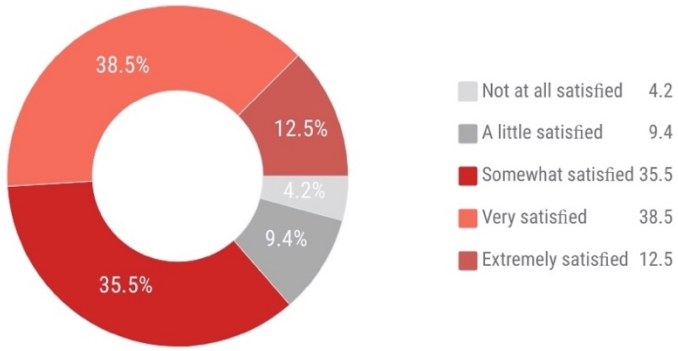
As previously noted, in our survey for the two OINPs some of the quality indicators for the Internship Scorecard framework were excluded in the interests of survey length (e.g., presence of learning goals). Here we report the indicators for internship quality that were included.

Supervisor Support and Mentoring. First, the literature indicates that supervisors' active support of interns' career development (i.e., supervisor support) is strongly associated with positive student outcomes (McHugh, 2017), yet little is known about the nature of supervision in online internships. Questions for this construct include four items that ask students about the extent to which they felt supervisors cared about their well-being or respected them during the internship. The mean of the perceived support score was 3.8 (on a five-point Likert scale, with 1= not at all to 5=a great deal) with a standard deviation of 1, suggesting a relatively high level of supervisor support, yet a somewhat lower level compared with 4.2 of all NSCI interns.

Another aspect of supervisor behavior is supervisor mentoring, which pertains to the provision of direction and feedback about task performance and career planning. This is measured using five questions using a five-point Likert scale (1=never to 5=extremely often). The average score of perceived mentoring quality is 3.2 with a standard deviation of 0.9, which is lower compared to that of the supervisor support. This was a considerably lower score than those of NSCI samples across three internship modalities (*M*=3.9 for NSCI in-person or hybrid interns; *M*=3.8 for NSCI online interns).

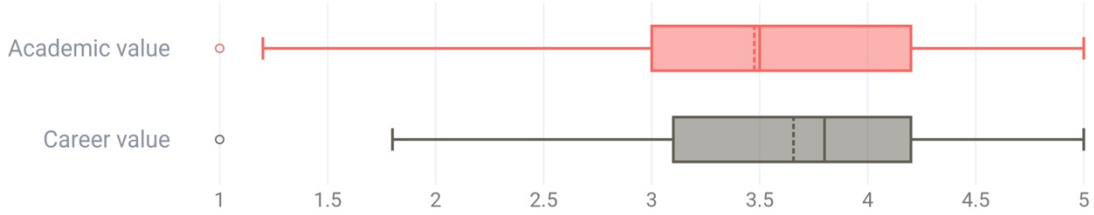
Satisfaction With the Internship. Next, we turn to the important question of whether students were satisfied with their online internship. We find large majorities of online interns from OINP-B (86.5%, n=83) were satisfied with their internship experience, including 12.5% (n=12) who were 'extremely satisfied,' and 38.5% (n=37) who were 'very satisfied.' By contrast, another 9.4% (n=9) reported that they are 'a little satisfied,' and only 4.2% (n=4) expressed 'not at all satisfied' with their online internship.

***Figure 12*. Satisfaction with the internship (n=96)**



Developmental Value of the Internship. The final indicator for program quality that we report is students' perceptions of how much their internship experiences have influenced their academic learning and career development (i.e., developmental value). This scale consists of 10 items with two subscales using a five-point Likert scale (1 = none to 5 = a great deal). The five items comprising the developmental value for students' academics had an average score of 3.5 and standard deviation of 1.

***Figure 13*. Perceived developmental value score distributions for OINP-B interns (n=96)**



The question receiving the highest level of academic developmental value pertained to the fact that the online internship motivated students to look for more hands-on learning opportunities in the future (*M*=3.8, *SD*=1.1), while the item in this scale receiving the lowest value asked students to rate how well the internship enhanced their understanding of knowledge learned in their academic coursework (*M*=3.3, *SD*=1.2).

The five items regarding developmental value for students' careers had an average score of 3.7 and a standard deviation of 0.9. Roughly two thirds of respondents (63.5%, n=64) indicated that the online internship helped them clarify their career goals 'quite a deal' (37.5%, n=36) or 'a great deal' (26.0%, n=25), with a mean score of 3.8 (*SD*=1). In contrast, a relatively low score was reported for whether the online internship helped them to identify a specific organization to apply for a full-time job in the future (*M*=3.3, *SD*=1.4). In fact, 28.2% rated this item as 'none' or 'a little.'

We found that OINP-B registrants rated the academic developmental value higher than NSCI online interns (*M*=3.6, *SD*=1) but lower than NSCI in-person interns (*M*=3.9, *SD*=1). The career developmental value of the online internship continued to be rated lower by OINP-B registrants than by the same NSCI comparison groups, that is, NSCI online interns (*M*=3.8, *SD*=0.9) or NSCI in-person interns (*M*=4.0, *SD*=1).

Survey Results: Equitable Access

Equitable access is not commonly considered an indicator of internship quality or efficacy. However, given findings regarding the financial burdens placed on low-income students who are expected to work for low or no wages, as well as the potential for unadvertised positions to be pursued solely by well-connected students, in this section we report on the compensation for online interns, how they learned about their opportunities, and the obstacles keeping students from successfully taking an online internship.

Compensation

For the 96 interns in our survey sample, 41.7% (n=40) of the students who took an online internship were paid, while 58.3% (n=56) were unpaid (see Figure 14). In addition, for those students who received compensation, their hourly wages were reported to range from $1.80/hour to $53.80/hour, with an average of $17.90 (see Figure 15).

***Figure 14*. Paid interns** (n=96)

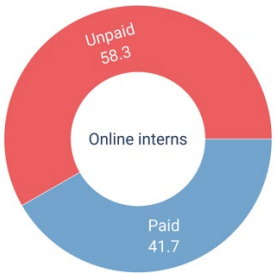
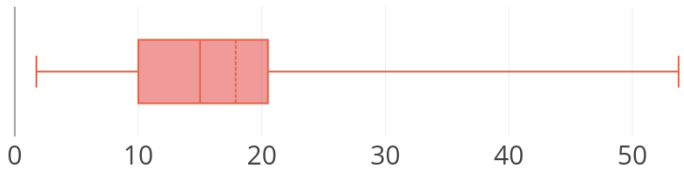


***Figure 15*. Internship Hourly wages ($) (n=40)**



Source of Online Internship Availability

There is an open empirical question regarding how college students learn about internship opportunities, with some concerns that employers, faculty, and others may act as "gatekeepers" by restricting information about internships to a select few students. In our study sample, we asked students how they learned about openings, with the assumption that the process should be as open as possible, in order to democratize access to internships. The largest number of survey respondents reported that they discovered their online internship program (i.e., OINP-B) through a search engine (40.9%, n=54) or faculty or career advisors at their institution (34.9%, n=46).

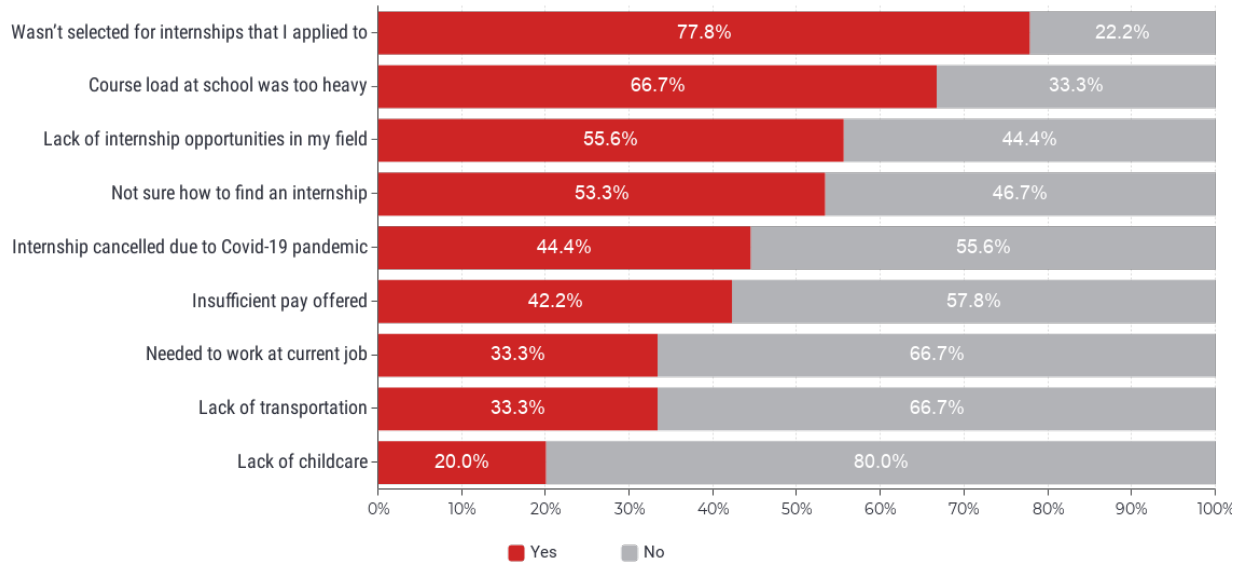
Friends or family were the least likely source for finding out about online internship platforms or opportunities (11.4%, n=15).

Obstacles to Accessing an Online Internship

Finally, one of the primary topics of interest in our various studies of college internships pertains to the obstacles that keep students from successfully pursuing an internship. Certain obstacles may effectively represent a form of "gatekeeping" that precludes students from pursuing potentially transformative experiences solely due to practical, financial or personal concerns or situations.

In the study sample of students registered with OINP-B, of the 50 students who reported not yet taking an online internship, most (91.8%, n=45) still expressed interest in conducting an online internship. These students signed up with OINP-B but hadn't yet been successful in taking an internship. The most common obstacle keeping them from taking an online internship was simply not being selected for internships they had applied to (77.8%, n=35), which underscores the competitive nature of online internships via OINPs in 2020. Other common obstacles reported by students include having a heavy academic course load (66.7%, n=30), lack of internship opportunities in their field 55.6%, n=25), and lack of knowledge on how to find an internship (53.3%, n=24). Less commonly reported challenges were lack of time due to their current job (33.3%, n=15), lack of transportation (33.3%, n=15), and lack of childcare (20%, n=9) (see Figure 16).

***Figure 16*. Obstacles to accessing an online internship via OINP-B**



Survey Results: Student Experiences With COVID-19 and Protests for Racial Justice

The final results we report from the survey of OINP-B student registrants pertain to the unique context of 2020, especially the Black Lives Matter protests against anti-Black violence, and the COVID-19 pandemic.

Observations About the Black Lives Matter Protests in Summer 2020

A series of questions in our survey inquired about the impact of the protests against systemic racism on students' career goals and plans. Overall, 31.7% of respondents (n=58) indicated that their career goals and plans were disrupted by the protests. Looking at their individual responses regarding this disruption, we found that closer to one in ten (12%, n=22) experienced challenges in exploring new career opportunities in different fields or conditions. Further, 8.2% (n=15) answered that career opportunities have disappeared (e.g., jobs, internships), followed by 7.1% (n=13) and 2.7% (n=5) reporting the difficulty of developing a professional network and professional skills, respectively. Among Black students (n=25), about seven in ten (68%, n=17) indicated no impacts of the protests on their career goals and plans. Twenty percent of Black respondents (n=5) acknowledged the protests led to the limited opportunities to explore new career options in different fields or conditions, with 4% (n=1) reporting the disappearance of jobs and challenges to strengthen their professional network, respectively. Other important impacts of the civil unrest and activism include: "made me consider deeply about company culture"; "the civil unrest led to creation of an internship program I am interested in, which focuses on underrepresented students"; "It reminded me that all of this work has to be dedicated to anti-racism"; and "The protests affect the way in which I approach certain job interviews, based on the company's apparent political learning."

Students' Experiences With COVID-19

Survey respondents were also asked whether the pandemic impacted different aspects of their lives and career plans. Nearly all the respondents (97.8%, n=179) shared that the pandemic reshaped their career plans, with 93% (n=170) reporting a disruption in their career goals. Specifically, 50.3% (n=91) of the students reported that career opportunities (e.g., jobs, internships) had disappeared, 17.5% (n=32) reported a disruption in their exploration of new career opportunities in different fields or conditions, and 13.7% (n=25) and 13.1% (n=24) felt that they were prevented from developing professional skills and professional networks, respectively. It is also interesting to note, however, that some students reported some positive experiences arising from the pandemic-induced changes to higher education and the labor market, including changing schools and pursuing additional degrees, redirecting and re-strategizing career plans to include online positions, and even being a full-time intern during the pandemic period.

Interview Results: Students Registered with Online Internship Networking Platforms

Next, we turn to the qualitative data collected for this study. First, we briefly report the number of student interviewees who actually participated in an online internship with one of the

two OINPs. In addition, given the focus on STEM students in our study, we provide a breakdown of STEM majors in our sample (see Table 8).

Table 8. **Participation in Online Internships**

	OINP-A	OINP-B
Number of participants in the study	24	21
Number of participants that completed an internship	2 (8.3%)	9 (42.8%)
Number of STEM majors in the study	8 (33.3%)	12 (57.1%)

In our interviews with these 43 students we asked about a variety of issues that varied depending on whether they had successfully taken an online internship with one of the OINPs. For the 11 students who had taken an online internship, questions focused on the nature of their experience (e.g., duration, tasks, type of supervision), their level of satisfaction (or not) with the internship, and whether the pandemic, resulting economic challenges, or the anti-racism protests of 2020 had influenced their lives. For the 32 students who had not been able to pursue an internship, questions revolved around reasons why they weren't able to take an internship, general views on work-based learning, and their experiences in the summer of 2020.

The primary themes identified in these interviews are shown in Table 9, grouped into four categories: challenges with pursuing an internship, reasons for pursuing an internship, perspectives on internship quality, and student views on diversity, equity and inclusion.

Table 9. **Themes identified in student descriptions of their online internship experiences**

Category	Theme description
Challenges with pursuing an internship	• Cancelled internship opportunities at beginning of pandemic • Failed to secure an internship via OINPs • Received limited support from campus career services offices • Experienced financial issues and material hardship during pandemic
Reasons for students to pursue an internship	• Acquire capital for future internship and career opportunities • Explore different career options and occupations • Develop remote working skills, commonly seen as the future of work
Perspectives on quality of online internships	• Nature of online work tasks • Nature of contract work • Benefits of being convenient and accessible • Problems with supervisor feedback and social interactions • Limited networking opportunities • Technology connectivity issues

Category	Theme description
Student perspectives on diversity, equity and inclusion	• Potential to open access for those not traditionally represented in internships • Anxiety about fitting into the workplace environment

Challenges Faced During the COVID-19 Pandemic

The COVID-19 pandemic impacted the academic and professional pathways of many of the students that we interviewed. Many students had to contend with cancelled classes and closed campuses, rapid shifts from in-person to online classes, cancelled study abroad programs, and research projects derailed due to closed field sites or laboratories. With respect to internships, five themes emerged that highlight how the pandemic disrupted not only internship programming but also the lives, plans, and well-being of many college students.

Cancelled Internship Opportunities. For several students in our study, their internships were cancelled as soon as the COVID-19 pandemic forced a widespread shutdown in April and May of 2020. For these students, amidst additional turmoil on campus with courses converting to online, campuses closing entirely and students being sent home, this was an especially stressful period of time. In response, with the need to gain professional experience, develop networks and hopefully earn money still intact, some students turned to OINPs for internships, especially on campuses where their institutions were actively promoting them as an ideal solution.

Failure to Secure an Internship via OINPs. For OINP-A, only two of 24 (8.3%) students in our study successfully completed an online internship, while for OINP-B, nine of 21 (42.8%) students completed an internship. As we discussed in a previous section, reasons for this relatively low participation rate provided by the OINPs themselves included much greater student demand relative to the number of available positions, students who were not strong applicants or pursued positions with insufficient energy, and a lack of institutional support and promotion for these positions.

However, from the perspective of some students, it was not a matter of persistence or talent, but one of an insufficient number of positions available for college students amidst the pandemic. As one student said:

> I was planning on signing up for something full-time or part-time after I graduated. However, I applied for a lot of remote positions and did not receive any of them despite my extensive portfolio. The fact that it was so competitive and I received so many rejection letters pushed me more and more to consider going back to school to get my doctorate. Right now going, back to school is safer than going into the job market during the coronavirus.

It is impossible to know whether an online internship would have influenced this particular student's trajectory. The competitive online internship market signaled to them that the overall labor market would also be competitive, making graduate school seem like a "safe" bet.

Limited Support From Campus Career Services Offices. One student described the response of the Career Services Office (CSO) at his college as "grasping for straws," as there was no coherent or effective effort to serve students' needs in a disruptive situation. Several students struck out on their own to find information about internships, in some cases using social media, apps, and the internet to find opportunities. As one student told us:

> I learned about (the internship) from TikTok. As a college student I barely have time to get a job. I was just looking for little things to help me pay for college.

At the same time, several students in our study mentioned that their CSOs did generate newsletters, emails, and social media postings about internship opportunities. As one student said, "I found out about the internship through a career newsletter from my university."

Financial Issues and Material Hardship During Pandemic. Students in our study spoke about financial hardship brought on by the pandemic, and how this added considerable stress to their lives and academic pursuits. Students also mentioned being concerned about loved ones at home who were vulnerable to the virus because of compromised health conditions, and the challenges of caring for children while schools were closed and childcare scarce. Ultimately, many shared that they were making calculations on how to balance critical obligations such as school, employment, family, and finances, making internships in some cases a secondary (and unimportant) consideration.

Consider one student we spoke with who described the challenging times her family was facing during the COVID-19 pandemic. Her parents both lost their jobs as a result of the pandemic, and she had moved home to save the family the money it would have cost to keep her near her university. It was very tough financially as her parents were supporting both their daughters, but the student was fortunate to land an online internship that she did from home. Unfortunately, the power in the home was out during finals and often during the workday, due to problems with the local electrical system. The utility company would not come out immediately because they needed to be sure the family wasn't a COVID-19 risk, and during those times she had to go to a neighbor's home to use their power during her internship. She described it as being "very scary because we didn't know if it was safe to be near other people."

Ultimately, students like this expressed that they were juggling a variety of tasks, responsibilities, and concerns, not the least of which was the threat coronavirus posed to their safety and that of their loved ones. This was especially the case for students from low-income and/or working-class backgrounds, where family members were considered "essential" workers in retail or hospitality, and thus were at constant risk. It is critical to understand that for many students in 2020, the prospect of an online internship was not simply a matter of finding the best

position, but instead was an intense struggle to advance their career prospects while also dealing with the anxiety, stress, and danger of a global pandemic.

Reasons for Students to Pursue an Internship During the Pandemic

Next, we turn to some of the reasons that students discussed regarding their pursuit of an online internship, including the desire for new forms of capital, career exploration opportunities, and to acquire remote working skills.

Acquire Capital for Future Career Opportunities. Several students told us they were hoping that an internship would translate into different types of capital or resources in the form of social connections or enhanced skills, later down the road. As one student shared, "It will help me find full-time employment after graduation—it's an opportunity to further my career," primarily by helping the student to develop new contacts in their chosen profession. For other students, new skills and aptitudes obtained via a "real-world" experience were seen as a valuable type of commodity or resource that could help them get a job in the future. For instance, one student said, "Any internship experience contributes to your future success by allowing you to build a deeper foundation and basically take the skills you learned in the classroom and apply them to a real-life situation which is very important for applying for full-time work."

Explore Different Career Options and Occupations. Among the students we interviewed, some admitted they were uncertain of their future career and hoped that an internship could help them decide on a career path. One of these students told us, "I'm trying new things in different sectors to understand better what I'm interested in." These students saw doing short term internships in a variety of industries as a way to learn more about professional opportunities.

Develop Remote Working Skills, Commonly Seen as the Future of Work. Finally, several students commented on the importance of remote working skills, which one student called "the future of work." Given the growing demand for remote workers amidst the pandemic, these students saw an online internship as a particularly effective way to develop these skills, which included becoming adept at Zoom, remote team participation and management, and engaging in multi-party projects with other remote workers.

Student Perspectives on the Quality of Their Online Internship

Next, we briefly report what students had to say about the quality (or lack thereof) of their online internship experiences. These observations pertain to the nature of online work, the nature of contract labor, supervision, and other indicators of the quality of the experience.

Nature of Online Internships Tasks. While students did not speak extensively about the specific tasks that they performed during their online internships, some did mention the fact that an online experience necessarily eliminated the "hands-on" component of an internship. For positions in administrative or managerial positions, this may not be an issue as in-person internships in those cases may involve considerable amounts of computer work. But for students

in fields that require or benefit from hands-on tasks, such as nursing, archeology, bench chemistry, and so on, an online internship is simply not the same. As one student said,

> I have no problem with online stuff but staring at a computer screen is not like hands on work done working with somebody next to you to complete a project.

Nature of Contract Work (OINP-A). For one of the OINPs in our study, the internships were primarily short-term contracts or projects that students worked on for brief periods (e.g., 4–40 hours). In these cases, the internship was decidedly different from one that lasted for weeks or months, and where the relationship between intern and supervisor developed in the course of multiple projects. Some students in our study felt that the shorter, contractual arrangements could lead to additional work. As one student said,

> I expected to put my foot in the door for some more exclusive companies that needed just very quick contractual work.

For other students, this type of internship was a good way to assess the nature of demand in the contract-oriented labor market. For instance, one student remarked that:

> I had hoped that (OINP-A) would be a good way for me to write down multiple types of experiences on my resume. However, now I'd say it's a good way to see what types of things people are looking for just to gauge the market to see what you can offer as a contractual person.

For these types of internships, it is important to note that some observers are concerned that contractual projects are essentially "gig" labor, with potentially low pay and no benefits, and that these experiences may be normalizing college students to less-than-optimal types of labor arrangements (Fisher, 2019).

Convenient and Accessible. Next, many students spoke very positively about the convenience and flexibilities of working remotely. One student spoke of the convenience of skipping a time-consuming commute by working from remotely from home, stating that, "Remote online internships offer conveniences, they are more flexible, there's no transportation time, and that makes things more simplified." Another student spoke about the power of technology connecting people for work, saying that, "I like online internships, and technology is connecting people to get work done without having to come into the office every day."

Besides the conveniences of not commuting, students also spoke to the value of being able to work in organizations away from their home, but without having to incur the expenses of relocating. One student, whose dream for a summer internship was dashed when the COVID-19 pandemic restricted his travel plans, spoke enthusiastically about his online internship assignment:

> I got an internship in Dallas but couldn't go because of the COVID pandemic, and was finally able to get an online internship in California, and being online I saved lots of money not having to relocate to the West Coast. The cost of living was too much and would have prevented me from participating.

Problems With Supervisor Feedback and Personal Interactions. Students expressed concerns about their engagement with their supervisors, and the generally poor communication with and lack of feedback from them. One student explained that although he contacted his supervisor with questions about his project work, he felt as though he was the at the bottom of her list of concerns. For this student, the frustrating part was waiting around for direction so that he could continue with his project. Another student said, "One of the disadvantages of an online internship is not having a supervisor that you can interact with regularly."

For another student who otherwise gave a mostly favorable review of the online internship experience, "Interactions online aren't as potent as they would be face to face, and you don't get the same dynamics of working in person with different people and reporting back to someone." Another student also voiced concern about the lack of supervisor interaction, sharing that some of this time during the online internship was keeping busy while waiting for feedback from their supervisors. These observations are not unusual for remote work in general, and aren't surprising given the challenges facing both employers and workers during the pandemic, but they should raise red flags about the online internship experience, which may need more scrutiny and attention regarding the quality of supervision and task management.

Limited Networking and Connecting. Another concern of students about the online internship experience was the issue of limited opportunities to network and engage socially with new co-workers. Students lamented the loss of an in-person workplace experience where they could engage with peers and mentors and craved the experience of getting to know colleagues and connecting with them over work and around the proverbial water cooler. Networking, several students explained, was a way to make an impression on regular staffers at the site of employment, a great way to learn more about the industry, rising trends, and to cultivate letters of recommendation for future internship or job opportunities. As one student said, "Not meeting people and not being in some sort of office situation stifles my networking opportunities."

However, not all students had negative views of the networking opportunities available while working online. Students reported other ways in which they connected with colleagues and supervisors, such as meetings with organizational leaders and other employees via Zoom and scheduled social hours. In addition, being part of a remote, multi-party team was a valuable experience for some interns, who gained experience working on an increasingly common type of workplace arrangement. One student said, "Because I served on a cross-functional team, I was able to meet people in different areas of the company through my work."

Technology Challenges. We also highlight challenges that students had with internet access, connectivity, and overall technology issues during their online internships. One student

described a persistent issue with connecting to her employer's remote servers, stating that, "It is harder to access IT support if you have any tech problems when working remotely." Another student explained that being quarantined in a house where more than one person was using the internet led to slower internet service and even more inconvenient disruptions. "With everyone being home there were issues with many people using the internet server at the same times, so there were times when I would have trouble having meetings online." These observations highlight that while some technology challenges may be ameliorated by employers via better IT support, subsidies for internet access, and even company-provided laptops, students faced other obstacles during the pandemic that were beyond anyone's control.

Student Perspectives on Diversity, Equity, and Inclusion

Finally, we report observations made by students in our study about issues related to online internships and diversity, equity and inclusion. First, several students observed that online internships had the potential to open access for people from groups that have not traditionally participated in internships. One student mentioned that online internships should mitigate the costs of things like travel and renting a new place in another town that may prevent low-income students from taking an internship. Another student who previously shared that he faced barriers to participating in internships said,

> I really feel that online internships are giving opportunities to people who wouldn't traditionally go for these internships either out of financial obligations or financial hardships. It really does open doors for people who traditionally aren't represented in corporate America.

Another student, however, shared a more negative side of the online internship experience. This student in an online internship cohort of 30 was the only woman intern and person of color at a financial services firm on Wall Street. As a first-generation, low-income student, and in an industry where being personable and creating conversations are key to success, she recognized that she had to figure out a way to engage and break through to her non-minority, White male internship colleagues. The most difficult part of her job was participating in conversations with her colleagues who were different from her, not so much about the technical languages or issues of mathematics and economics, but in the informal side conversations that happened between or even during meetings, which often revolved around sports. After her long internship days of working on a Bloomberg financial console, she began to watch the sports streaming platform ESPN to study the way people spoke about sports.

But even with these efforts, the student reported feeling tokenized, where people would look to her to be a spokesman for issues regarding women or people of color. While this experience is likely not solely due to it being an online internship, as such tokenization and discrimination is certainly present in in-person internships, the lack of in-person conversations and opportunities for collegial interactions may exacerbate differences while inhibiting chances for interns to forge connections with one another and their new colleagues. In any case, research on internships in

general and online internships in particular, needs to attend to these issues of diversity, equity and inclusion much more than has been done in the past.

VII. Results From Case 3: Employer-Led Online Internship

In this final set of data from our study of online internships during the COVID-19 pandemic, we offer a short case study of a single company that offered an online program to college students in 2020. We contend that examples of successful and well-designed online internships are important to not only counterbalance the somewhat discouraging findings from other parts of our study (as there are bright spots in the field), but also to highlight the employer perspective on an internship program and to provide clear examples to readers and internship practitioners of what an effective online internship looks like in practice. The information in this case is based on an interview with a company representative and analysis of documents and videos from the company.

Background and Context of the Internship Program

TreeHouse Foods Inc. is a large, multinational company with over $2 billion in annual sales. It is important to recognize that the internship program profiled here is not representative of programs in small- and medium-sized organizations, or the non-profit or government sector. The differences between internships across these dimensions are complex, but here we highlight the fact that larger firms likely have more capacity to design and operate high-quality internships at scale, and that their rationale for hosting an internship may differ from other organizations. In the case of TreeHouse Foods Inc., the reason for having an internship is clearly about talent recruitment. In a promotional video, a financial manager says that the internship program is "absolutely the way we're going to bring people into the organization." Thus, this employer's intent, which can be a key factor in the internship experience, is talent recruitment and not public service, inexpensive labor, contract work, or short-term career exploration opportunities.

The organization is very large with over 10,000 employees across its various divisions, which include approximately 8,000 staff in over 20 different manufacturing facilities around the world (but with many in the Upper Midwest), and 2,000 professional staff. About 500 professional staff, which includes management, human resources, sales and marketing, and related functions, are located in corporate headquarters in a major city in the Midwestern United States.

The internship program at TreeHouse Foods Inc. is several years old, and interns are placed in six different divisions or core functions across the firm (and in different locations) including financial services, sales, engineering, quality, supply chain, and commercial.

Prior to the COVID-19 pandemic, the organization had approximately 30 in-person interns a year, with no dedicated internship coordinator but a handful of human resources staff and managers across divisions working to supervise and manage the interns. These professionals, it should be noted, engaged student interns in projects that were meaningful to the company, which likely required a considerable amount of their time. For student interns at TreeHouse Foods Inc.

the conversation rate (how many interns receiving full-time job offers actually take them) in recent years has been about 1/3, which satisfied their goal of recruitment and talent development according to the company representative.

How the Internship Program is Structured

The internships at TreeHouse Foods last approximately 10 weeks and are built around a single project that staff at the firm identify for promising internship projects. In the early years of the program, the company realized that they needed to clearly identify, define, and assign authentic tasks as soon as the internship started; now the company spends time in the months prior to the internship identifying these projects.

Some of the projects that student interns pursued in 2020 included a chemical engineering student working on a large-scale water reclamation project; a business student working on a pricing optimization project using real data from the firm; a sales student creating (and delivering) authentic presentations to clients; and a business student performing a capital analysis that involved benchmarking firm activities against competitors. These projects typically involve 3–4 people that represent the team who works with the intern over the course of their 10-week experience. The weekly schedule for the program includes the following:

- Week 1 Orientation, program expectations, lessons with leaders, meet-and-greets
- Weeks 2–4 Lessons with leaders, plant tours, preparation for mid-term evaluation
- Week 5 Mid-term evaluation
- Weeks 6–9 Weekly assignments, lessons with leaders, social outing, final evaluation preparation
- Week 10 Final evaluation

The “lessons with leaders” activity is a regular meeting where student interns meet with a leader across the firm, who speaks about their own career pathways, what they do at the firm, and answers any questions students may have about the company, career opportunities, and so on. Another activity is the “intern showcase” where students learn about other departments and share the results of their project with a larger group. These are examples of structured opportunities for students to gain exposure across multiple teams, learn from leadership that they normally would not encounter, and to generally create a sense of a culture of professional development.

What TreeHouse Foods Did During the COVID-19 Pandemic

Once the pandemic truly hit U.S. society in March 2020, with closures of sports leagues, schools, and many basic services, TreeHouse Foods initially sent its non-production workforce home and paused the internship program. The coordinators asked themselves if they wanted to proceed with an online program, which would involve a considerable amount of work to tweak projects so that they could be performed online, to ensure that all interns had sufficient IT and internet access, and to shift to a remote work situation across all team members while also managing student interns. Only one unit, the commercial division, ended up cancelling

internships in 2020; making the change was initially "overwhelming," as one employee shared. However, the executive team decided to forge ahead with the change given the centrality of the internship program for recruitment, and the fact that top leadership in the firm are big advocates of internships as a form of experiential education and recruitment. Thus, the firm decided to move ahead with online positions following the same schedule as usual—start in early summer and finish towards the end of August.

Once this decision was made, students were notified and the firm shipped laptops around the country for the interns. Perhaps the biggest challenge from the company's perspective was to build the curriculum and provide students a "real experience" of the workplace at TreeHouse Foods. To do so, they found that three things were critical to make the experience meaningful and socially engaging for the interns:

1. Hold Lessons with Leaders on a regular basis. This activity was part of the in-person internship but was especially important in 2020 to forge a sense of culture and belonging for the distant students.
2. Hold the Intern Showcase event. This activity also allowed each student to meet other interns, learn about the firm across divisions, and to highlight their work to employees and leadership. This event was also part of the in-person experience, and was especially important for the online internship.
3. Ensure that: project teams were carefully chosen to be effective remote managers; the projects had 3–4 concrete meaningful tasks so that interns would be engaged; and that supervisors were in regular communication with students.

In another promotional video of the online internship program, one student said the experience was "very interesting," that communication was a challenge given the online setting, and that they were nervous at first about the whole idea of a virtual internship. But once the company provided laptops and included them in regular meetings, they felt that the experience was a reasonable approximation of an in-person experience.

Lessons Learned and Next Steps

As noted in our review of the literature on online internships, remote work, and digital learning, finding ways to make communications and tasks both relevant and effective is a key element of a successful experience. In 2020, it appears that TreeHouse Foods was successful in doing this for their interns. Having the foundation of well-designed project-based internships was certainly an advantage for the company, along with some experience in having teams located across different offices and time zones, which made the switch to online less daunting than for organizations with no such prior experience. To conclude this brief case study, we share two lessons learned that our respondent shared with us, that may inform the internship program at TreeHouse Foods in a post-pandemic world.

Remote Work Skills and Arrangements Are Important but not the Future "Normal State"

As one TreeHouse Foods employee shared with us, remote work and the skills required to work virtually will remain an important part of professional life at the company, but they were not at the "top of their mind" when it came to the goals of the internship or future skill needs in their firm. Instead, he stated that the company has an "office culture" and is hoping to return to that as soon as possible. While the relative emphasis on remote work skills will vary from organization to organization, it may be premature to declare that remote work is "the future" across the entire labor market. That said, more and more large companies such as TreeHouse have offices in multiple locations. The skill to work remotely with team members who are not physically present is highly likely to be useful for college graduates in the coming years.

Continuous Improvement

Another issue we highlight with TreeHouse Food's internship program is the apparent commitment to continuous improvement, which is a core principle in many business and management operations as well as some approaches to educational reform (e.g., Mandinach, 2012). In a video, an HR professional at the company states that current interns will help to shape future programs by, "telling us what works, what didn't, what we could improve upon." This approach to continuously refining and updating the program is one of the hallmarks of effective internship programming, whether online or in-person, and is especially important in a post-pandemic landscape. While any updates or changes made to their internship program based on feedback from the experiences of 2020 are not yet apparent, it will be important for organizations—especially those continuing to maintain some form of remote work arrangements—to be attentive to the problems of 2020 and to improve them for students in 2021 and beyond.

VIII. Recommendations for the Future of Online Internships

In this multi-case study of online internships during the COVID-19 pandemic, we sought to contribute to both the research literature and the ongoing practice of designing and implementing online internships for college students. Through the collection of both quantitative and qualitative data across three distinct cases—two OINPs, 11 colleges and universities, and one employer—our aim was to generate robust empirical data that addressed the following research questions:

> RQ1: How many students successfully completed an online internship in 2020, and what were their demographic and academic characteristics (e.g., major or discipline)?
>
> RQ2: What were some key structural features of these online internships such as duration, compensation, type of mentorship, and the nature of interns' tasks? Were these features associated with particular student demographic or academic characteristics?

RQ3: How do students rate their satisfaction and developmental value (both academic and career-related) of their online internship experience?

RQ4: How, if at all, do these data compare with students pursuing in-person internships?

In this report, we provided answers to these questions using three distinct yet complementary datasets that contribute important new empirical insights into the phenomenon of online internships, particularly during the highly unusual year of 2020 during the COVID-19 pandemic. In interpreting the data reported in this paper, we focused not only on descriptions of the prevalence and nature of online internships, but also the other two key elements of the Internship Scorecard: program quality and commitment to equity and access.

With respect to the quality of online internships, we remind readers that our criteria include key principles of internship program quality that have long been articulated by agencies such as NACE (2018), e.g., making the internship an extension of the classroom, providing transferable skills and routine feedback, and ensuring that student interns are given clearly defined learning goals. We also consider principles from other fields of inquiry (see Table 1).

With these criteria in mind, one of our primary conclusions is that considerable variation exists within the world of online internships, including differences in the program duration, quality, and host or intermediary (e.g., OINP or employer). While such variation is also evident in in-person internships, the online experience adds another layer of complexity, with considerations about IT, internet access, work-life boundaries, and the challenges associated with online or remote work that many occupations experienced during the Covid-19 pandemic. In short, we argue that these additional factors make online internships, which are unlikely to disappear post-pandemic, a top priority for improvement and quality control in the field of higher education. Further, because first-generation and low-income students are not significantly more likely than their more well-resourced counterparts to pursue online internships, these experiences may serve as vehicles for the reproduction of privilege and inequality—echoing a long-standing concern in the field about in-person internships (Curiale, 2009; Shade & Jacobson, 2015).

Our key findings outlined below should be interpreted with caution, as they do not reflect all types of online internships and also do not reflect a random and/or representative sample of all college students in the United States. With these caveats and standards for interpreting our data in mind, we offer the following seven conclusions and recommendations.

Finding #1: Internship participation was low during the COVID-19 pandemic, with interns roughly split 50/50 between online and in-person modalities.

One of the biggest findings from our pilot National Survey of College Internships, answered by 9,964 students from 11 campuses, is the large number of students (77.9%, n=7,761) who did **not** take an internship. Of the 22.1% (n=2,203) students who conducted internships, our key finding is that 45.3% (n=993) took an online internship, while 47.6% (n=1,044) had an in-person

experience. These findings indicate that overall participation in internships during the pandemic was low, with only 1 in 5 students successfully completing an internship. Further, contrary to conventional wisdom that most (if not all) internships were online during the pandemic, our data show that students who took in-person internships were similar in number to those who took online positions.

These results on internship participation are similar to our 13-institution dataset for the College Internship Study (2017–2019), where interns and non-interns reflect 30% and 70% of that study sample, respectively; however, our recent data indicate a decline in overall internship participation in comparison with these earlier data.

Finding #2: Online internship networking platforms (OINPs) play an important role in the ecosystem of internship opportunities, but during the pandemic student demand outstripped the supply of available positions.

Another key finding pertained to the role that OINPs played during the pandemic. Some argued that such platforms would fill an important gap in providing access to online positions, as in-person positions were widely cancelled; however, our data indicate that while OINPs played an important role in the internship ecosystem and served the needs of many students, more students registered with these platforms than there were positions available for them. For students who registered with the OINPs in our study, the number of students who actually took a position was low: less than half the interviewees (8% for OINP-A, 42% for OINP-B) and 65.6% (n=120) of survey respondents from OINP-B. It is important to note, however, that for students who found and completed an internship via the OINP-B website, these internships were largely positive and productive experiences.

These findings raise questions about the scope and role of OINPs in the broader landscape of internships, and how they fit within the suite of online positions available to college students, while also pointing to the need to increase the number of remote positions available to students seeking internships.

Finding #3: Online interns in our sample tended to be continuing-generation, have higher GPAs, come from upper-income families, and were non-STEM majors.

Our data indicate that the demographics of students pursuing online internships varied significantly along key demographic variables such as first-generation status, grade point average, family income, major, race, and gender. While these results need to be cautiously interpreted given the non-random and non-representative nature of our study sample, the data do indicate that online interns represent a relatively narrow slice of the student population. In particular, for those engaged in supporting STEM education, such as the National Science Foundation, these data highlight the fact that online internships are currently not a feasible option for STEM students. This situation may be due to the hands-on nature of work in these disciplines and/or the predominance of business and non-STEM employers offering remote positions.

Finding #4: Online internships do not appear to solve the access and equity problem.

For some observers, the online internship has the potential to solve the access and equity problem in the internship world, where unpaid positions typically exclude low-income or working students, too many positions are available only through social networks, and geographically isolated students are unable to access positions located in large, urban areas. However, our data suggest that online interns are predominantly from upper- and middle-income backgrounds (75.8%, n=634) and that more online than in-person internships are unpaid (42% versus 34.9%).

Our data also indicate that informal and inter-personal resources are the most common source of information about internships, that most (but not all) students recall anti-discrimination policies as part of their internship posting, and that a small number (2%, n=20) experienced discriminatory behaviors first-hand in their online internship. However, the fact that 3% (n=64) of students overall reported discriminatory behaviors and that about 40.8 % (n=405) of online interns did not recall anti-discriminatory policies from their organizations indicates room for improvement.

Finding #5: Online interns report lower satisfaction, developmental value, 21st-century skills, professional network development, and high-skill tasks than in-person interns.

As part of the quality indicators of the Internship Scorecard, we highlight key factors that the literature indicates are important components of an effective internship, as well as outcomes that are often discussed as benefits of the internship experience. Unfortunately, our data indicate that online interns have significantly lower levels of satisfaction with their experience, lower scores for both academic and developmental value, lower levels of acquiring new 21st-century skills, and less growth of professional networks than students pursuing in-person internships.

Furthermore, the data indicate that fewer online interns report being engaged in high-skill supervised work than in-person interns (31.9% to 40%), which is one of the core ideas of experiential learning, especially for internships and apprenticeships that are intended to introduce novices to the professional world. These results are troubling and indicate that the benefits of an in-person internship do not easily or uniformly translate to an online experience.

Finding #6: Future online internships must pay close attention to task design, supervision and communication.

Based on data from both our surveys and interviews with students, it is clear that while all internship providers (and their academic advisor counterparts) need to pay close attention to the quality of task design, supervision, and communication, these issues are especially lacking in some online internships. Consequently, as the field continues to advocate for students to take online or virtual internships, we must address and improve task design, supervision, and communication. These elements also affect remote work more generally, especially the problems of social isolation and ineffective supervision and communication. Therefore, if an online internship is to provide students with remote working skills, which one student called “the future

of work," then employers and academic advisors will need to improve how online experiences model and cultivate these skills.

Finding #7: Support services and training will need to be provided to many employers (and academic advisors) regarding how to design and implement an effective online internship.

One of the primary conclusions we can draw from the data collected for this study is that while online internships are likely a permanent part of the ecosystem of experiential learning for college students, and a potential answer to some vexing issues related to equitable access, they remain a work in progress. To improve these complex forms of remote and/or digital learning and professional socialization, employers and academic advisors will need training and support services to develop high-quality programs. While not all organizations will be able to offer positions like those featured by TreeHouse Foods, the goal for all online internships should be to offer experiences that comply with National Association of Colleges and Employers standards, the principles of the Internship Scorecard, and key elements of effective remote work and digital learning.

Our study indicates that the field has far to go. We cannot ignore the fact that many college students were struggling with financial, mental health, and academic challenges even before the COVID-19 pandemic. In a post-pandemic world, we should seek to improve internships at the employer and advisor levels, but also to provide support services so that students have the tools and resources to thrive and persist in higher education.

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