



# Technology Internships Prove Flexible, Resilient, and Critical During COVID

One Community College's Pivot to Opportunities During the Pandemic

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## At a Glance

This research is about how one community college preserved and strengthened their technology internships during COVID with commitment and creativity. Although the college, employers, and students faced technical, logistical, and supervisory challenges in maintaining technology internships through the pandemic, the college was committed to ensuring their resilience because they were required for graduation. As a result, many interns had opportunities to gain new skills related to navigating virtual work arrangements. In addition, employers drew on interns to fill staffing shortages and internships continued to serve as a key bridge to technology employment during the pandemic.

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## Introduction

We embarked upon this research to explore how COVID has impacted technology internships, including student and employer participation, satisfaction, and challenges; changes in the structure of internships; and impact on student employment outcomes. The roots of this study emerged back in summer of 2021, just as we were completing a three-year study funded by the National Science Foundation (NSF) to examine how community colleges can create effective technology internships as a bridge to employment for community college technology program graduates.<sup>1</sup> To analyze such internships, the study team conducted case studies at two Florida community colleges (Gulf West Community College and Gulf East Community College). The two schools provided an interesting comparison, because internships were required in order to graduate from Gulf West but were required by only some technology programs at Gulf East. Key findings of that study indicated that technology internships do have the potential to serve as an effective bridge to employment, although few technology students have the opportunity to participate in such internships. Only when an internship was required for graduation did students participate in significant numbers, with benefits from participation found for all students, including men of color and women of all races, who are traditionally underrepresented in high-opportunity technology career pathways.

The pandemic began in the United States just as the initial study was drawing to a close and COVID's effects on internships were just starting to emerge. Recent national surveys have documented significant changes in student access to internships and in the structure of internships as a result of the pandemic. In a recent poll by the National Association of Colleges and Employers, about 17.8 percent of employers reported revoking internship offers in the spring of 2020, and 80 percent made at least one change to their program, including 54.8 percent who moved their internships online. Another 48.7 percent of employers surveyed shortened the length of internships, and 25.1 percent reduced the number of interns they brought on board.<sup>2</sup> Glassdoor reported a 52 percent drop in internship openings in early April 2020.<sup>3</sup> Impacts varied by sector, with students in travel and tourism, information technology, and architecture and civil engineering facing the biggest downturns in internship opportunities.<sup>4</sup> Employer recruitment at community colleges also declined by as much as 50 percent as a result of the pandemic.<sup>5</sup> A large survey of 9,964 students from 11 universities found that there was a decline in internship participation during COVID and that half of those who did participate did so online.<sup>6</sup> It also found that online internships did not open up access to low-income and working students as had been hypothesized. Students participating in online internships also reported being less satisfied with their experiences than students who participated in person.

As of yet, there has been little research on how the pandemic has specifically affected community college technology internships, including participation, program structures, and outcomes. As our initial NSF research demonstrated, educational context is important to these aspects of internships. Those findings showed that students in community college technology programs face several barriers to internship participation, including finding internships in their field, finding paid internships, navigating scheduling challenges due to full-time work and family care responsibilities, attending college part-time or online, and finding transportation. Our research also highlighted the importance of technology internships in students' transitions from these workforce educational programs (engineering technology and information technology) to careers. Employers noted that the skills students develop in technology internships, including problem-solving and troubleshooting abilities, effective communication, and continuous learning, contribute to success in technology careers and are not easily replicated in the classroom. Questions remain regarding how the pandemic has altered technology students' access to internships and the structure of internships, and whether the benefits of internships for technology employment and for broadening participation in technology careers have been sustained during the pandemic.

To fill these research gaps, this follow-up study addresses four broad research questions:

1. How has COVID affected student and employer internship plans and opportunities?
2. What have been the challenges and opportunities in translating internships to a virtual environment?
3. How did internships mediate graduates' transition to employment during COVID?
4. How has COVID affected the potential for internships to broaden participation in technology careers?

Data to answer these questions come from Gulf West Community College.<sup>7</sup> Gulf West was selected for the follow-up study because of the high participation rate of students in internships. Between 2010 and 2019, 84 percent of the Gulf West technology graduates had completed an internship<sup>8</sup>, compared with 23 percent of Gulf East Community College technology graduates.<sup>9</sup> Even before the pandemic, it was much harder for technology students at Gulf East to secure and participate in an internship. In the follow-up, we wanted to focus our attention on what had changed during COVID which made Gulf West a good fit. We were also guided by the constraints of the funding, which only allowed us to reinterview and resurvey students that we had already collected data from during the initial study. We collected much more data at Gulf West than at Gulf East because of the high student participation in internships. In addition to 30 student interviews, we also surveyed 200 internship students (half before COVID and half during). At Gulf East, there were not enough students participating in an internship to warrant a

survey. For these reasons as well as the short-time frame for data collection during the follow-up (October 2021 – January 2022), we chose Gulf West as the focus of our follow-up case study.

Data for our follow-up study included interviews with 16 technology students, six employers that provided internships during the pandemic, and eight community college representatives (faculty members, internship coordinators, and deans).<sup>10</sup> We also drew on two internship surveys for this analysis. The first is from the initial study fielded between April 2019 and April 2020, with responses from 100 students who completed internships before the pandemic and 79 who completed internships during the pandemic. The second, fielded in January and February of 2022, is a follow-up survey sent to the 179 respondents who completed the initial survey (N = 81).<sup>11</sup>

## Key Findings

### Internship Structure and Logistics During COVID

Internships at Gulf West, which are a required component of the college's technology programs, are designed to meet three goals: (1) provide students with an opportunity to apply skills they have learned in their academic coursework, (2) allow students to test out a position they think they might be interested in, and (3) acquire experience they can include on their resumes. Pre-pandemic, internships were typically on-site at an employer, running from 60 to 180 hours per semester, depending on the program in which the students were enrolled. An online course is also part of each internship. Students typically enroll in the course and participate in the internship during their last semester before graduation. Just over half of the students surveyed (53 percent pre-COVID, and 51 percent during COVID) reported that their internships were paid, although interviews identified unpaid internships as a challenge for many.

The most significant change in the internship program due to the pandemic was the rapid and large expansion of virtual internships. During our initial period of research, between the fall of 2018 and March 2020, we knew of no Gulf West students who had participated in a virtual internship. Between April 2020 and May 2021, however, 47 percent of the students surveyed indicated that they had participated in a virtual internship. As we discuss in more detail below, these virtual arrangements made internships possible during early pandemic lockdowns and created opportunities for many students to continue learning outside the classroom despite pandemic disruptions.

Other changes in the internship structure occurred early in the pandemic during the most disruptive periods of rapid adjustment to lockdowns and business closings. During these early disruptions, Gulf West offered some students alternatives for meeting its internship requirements, including completing an additional advanced engineering technology (ET) or IT course or a capstone project. As the college and employers adjusted to the pandemic, however, Gulf West reinstated the pre-pandemic internship requirement for all IT and ET students. One IT faculty member noted, "I'm not aware of anybody who's affected in the fall 2020 who is not graduating because they couldn't come up with an internship."

Similar to what was reported in our initial study, during the pandemic, students, faculty members, and employers reported that internships continued to provide unique and valuable real-world learning experiences that supported the development of technical and soft skills and provided opportunities for students to network. This was confirmed by our initial internship survey, in which nearly all students (94 percent pre-COVID, and 99 percent during COVID)



reported that their internship supported their education and career goals.<sup>12</sup> Most survey respondents also indicated that the internship was “a good fit” for their education and career goals (91 percent pre-COVID, and 94 percent during COVID), and more than half indicated that the internship provided valuable hands-on work experience and professional skills.

Also similar to the initial study, faculty members and administrators at Gulf West expressed frustration with the process for matching students to employers for internships, lamenting a lack of consistent internship opportunities among local employers. This is perceived as a systemic issue that is independent of the pandemic. Survey respondents described the need to constantly engage new employers and reengage former employers. Faculty members characterized the process as “piecemeal.” One stated, “I’d love to have five places where we know for sure we can always send students and they can have an option of working here, here, or here, so that they can really have a better choice of where to start their career or at least get their initial experience in their career.”

Despite the challenges with employer engagement, the pandemic might have shifted expectations somewhat because of the increased need for workers across many technology industries. Some faculty members noted that for the first time, many employers seemed to realize the importance of engaging with Gulf West. As one faculty member said: “We have so many industry partners that are reengaging with the college. They’re wanting to have their internship or their positions posted to the job board. They’re wanting to do demonstrations and talks with the students. They want students to come to their sites and visit. So they’re offering a lot more opportunities for the students because they definitely have a talent pool shortage.”

This labor market demand created opportunities for Gulf West and its technology students to develop relationships with new employers interested in providing internships, and it furthered advancements in creating a pipeline from internships to employment. In addition, faculty members reported that new local employers had been added to advisory committees, which could lead to additional internship opportunities, stronger relationships, and program improvements at Gulf West. These opportunities hold promise for addressing the perceived piecemeal nature of the current program.

## **Internship Learning Opportunities for Students**

Similar to what was reported in the initial study, students at Gulf West who were interviewed for the COVID follow-up reported that they valued the real-world experiences they gained through their internships. They were able to apply the theoretical knowledge they had gained in their coursework while also refining both technical and soft skills. As one student noted: “I like the

hands-on more than the books. The books [are] fine. But when I actually get to do it, that's when I really start to understand more.”

Internships also provided needed information about career paths available within the field and led some students to realize that the career they experienced in their internship was not the right path for them. Several students shared that they did not fully understand the many career options available to them within their fields of study until they participated in an internship. As one student explained, “It kind of gave [me] the opportunity to understand what's out there and the trajectory that can be accomplished, because I feel like school teaches you the theories and the basis of the role itself, but once you get to networking and talking to other people, then your eyes are open to what the possibilities are.”

For other students, participating in real-world experiences within their field during the internship solidified their future career plans and goals. Said one, “I was attracted to R&D in mechanical design after taking the classes at Gulf West, and that internship and role allowed me to really dial in [on] what I liked most about it, and it helped me solidify what I wanted to do in the future.”

Many students were able to use their current employment positions within the technology field to fulfill the internship requirement for their associate's degree. Though these students had already been working in the field, several discussed new skills they had obtained during their internships at their current place of work. Rather than maintaining the roles and responsibilities they'd had before, these students made the most out of their internships by taking on new roles and learning new skills within their companies.

As the pandemic continued into the fall and spring of 2021, many opportunities for internships in the ET program opened up due to high employer demand resulting from workforce shortages, especially in medical manufacturing. For biomedical ET students, internships in hospitals began to open up again. By the fall of 2020, faculty members indicated that students had few issues finding internships, especially when virtual internships were acceptable. As one faculty respondent reported: “It's not normal, but it doesn't seem new anymore. But I think they've adjusted, and so students are finding internships—virtual internships [are] becoming more normative, I think, where students are working remotely rather than shadowing someone or being in a face-to-face role with the company.”

## **Internship Challenges for Students**

As noted in the initial study, students experienced a variety of challenges related to securing and completing their internships before the pandemic. COVID-related obstacles exacerbated some of

those challenges, including securing and persisting in an internship, and introduced others, such as having to learn how to participate in a virtual internship and being unable to engage in hands-on learning activities in a virtual environment. ET students, especially those who needed to work with equipment and gain in-person, hands-on experience, had the most difficulty finding internships during the early phases of the pandemic. For ET students working with medical equipment, the situation was particularly challenging early on due to restricted access to hospitals, shutdowns and changing COVID safety protocols. As a result, some students moved into medical manufacturing internships that might not have been as well aligned with their career goals but gave them a chance to explore other career pathways within biomedical engineering.

Securing internships was especially challenging during the early phases of COVID, when many companies were no longer offering internships at all. But even after employers moved internships online and others began to open up in-person opportunities again, students found securing internships a challenge due to a lack of industry connections and the lack of a centralized platform where they could learn about and apply specifically to technology internships. Although students acknowledged the assistance they received from professors and academic counselors in obtaining internships, as with the initial study, they expressed a desire for more assistance in matching with industry partners.

Students who were able to secure an internship during the pandemic discussed challenges related to a lack of structure within their internships and, specifically, a lack of formal mentorship—something that was also reported during our initial research. Some of the companies that students interned with did not have a formal internship program, which led to gaps in supports. Students commented that having more structure and mentorship within their internships would have allowed for a more meaningful experience. Because of the lack of mentorship within some companies, some students found themselves reaching out to external individuals for guidance. As one Gulf West student explained, “A big challenge was that there’s not really a lot of opportunity for mentorship within the company because it’s just me and my colleague. So a lot of times, I would have to ask either folks in my friend group, my networking groups that I’ve made with other IT professionals, or folks that I met.”

The competing demands of family and work were reported to be a major drawback of the internship requirement—and the challenge was only intensified by the pandemic. One student noted that having to cut back their hours at their current full-time position to make time for an internship would mean less income for their family and the potential loss of health insurance coverage. Another student shared that they were already working more than 40 hours per week between multiple jobs and had availability for an internship only on weekends, which made it

challenging for them to secure a virtual or in-person internship. Students expressed a desire for more flexibility to address such competing demands.

Although many of these challenges were also experienced by students before the pandemic, others were directly related to it. Some students were reluctant to risk COVID exposure by participating in an on-site internship if one was even available, and others were not confident about the safety precautions being implemented in some workplaces. Although internships are meant to allow students to apply their classroom knowledge to real-world situations, some students reported that being in a virtual environment made them feel further removed from the actual activity of the workplace.

## **Student Challenges From the Employer Perspective**

Employers raised two major issues regarding challenges for students. First, in-person employers indicated that interns struggled to react to and abide by the changing COVID regulations. These employers also saw students struggle with limited access to buildings and frequent issues getting through security, especially as COVID regulations evolved. Organizations that had some units in the office and others working remotely acknowledged that interns experienced difficulties communicating across the units because the organization had not mapped out a chain of communication for this situation.

A second challenge identified by employers, echoing that noted by faculty, was students' struggle to adapt to the communication challenges of remote work. As the necessity of clarity and assertiveness increased, as well as the need to ask questions, students who lacked communication skills had trouble completing assignments properly or in a timely fashion. One employer said, "I'm thinking that, probably, for some interns, if communication wasn't a strong point, being in COVID really challenged that, because there [were] a lot of phone calls and [virtual] face-to-face interviews with staff and faculty, asking questions and engaging."

## **Employer Perspectives**

Employers value interns because they help feed their talent pipelines and help them meet their productivity needs—something that was especially important during the pandemic. But such programs are not without their challenges. Our interviews with employers found that they faced many of the same issues with internships both before and during the pandemic; for example, in both studies we conducted, employers said they would like more support from Gulf West in supervising and mentoring interns.

Employers indicated that they found virtual internships challenging to set up at first due to technical issues, such as inadequate home internet connections, difficulty supervising students remotely, and interns' inexperience with communicating through virtual platforms. But at the same time, virtual internships created more opportunities for some interns to connect with supervisors. For example, several employers spoke about meeting more frequently with their interns to provide better support on work expectations, project goals, roles and responsibilities, and feedback. This increased interaction led to stronger mentoring relationships between employers and students.

Like Gulf West faculty members, employers described internship challenges related to the pandemic's timeline: the struggle to maintain existing internships at the start of the pandemic; a pause in internship programming in the late spring and summer of 2020; and an attempt, for many, to bring interns back to their respective organizations beginning in the fall of 2020. Employers experienced challenges and opportunities during each of those phases.

### ***Initial Logistical Issues***

At the start of the pandemic, many of the employers we interviewed, particularly those in computer programming and IT, were struggling to shift their full-time staff members to remote work. Meanwhile, they confronted the same logistical challenges in attempting to maintain their internship programs. Employers initially had difficulty distributing laptops because of confusion and delays related to scheduling their physical retrieval. External users also experienced security/firewall issues because employers did not yet have protocols in place for remote access to their networks.

There were also concerns over the quality and speed of interns' home internet connections; employers cited internet troubles as the biggest technical stumbling block to their interns' productivity. As one employer explained, the challenges with interns were “very similar to what we were experiencing with all of our staff—with all of our employees, technical and nontechnical, just . . . making sure that everybody had the technology that they needed, making sure that we got . . . laptops issued out to everybody . . . and then just dealing with the quality of home internet, which varied significantly from person to person.”

### ***Struggles With Supervision and Evaluation***

In the early days of the pandemic, employers experienced a learning curve in adjusting to virtual platforms, resulting in difficulties interacting with and supervising interns. Some employers cited challenges conveying information to interns when they could not meet face to face and struggled to communicate the importance, complexity, or urgency of a given directive without use of the social cues. The need for additional clarification around project timelines and responsibilities often resulted in delays in the interns' project completion.

“I had to learn to communicate, not just face to face, but electronically,” one employer explained. “So that shifted as far as, ‘How do I adapt electronically to see and communicate versus the face-to-face?’ It’s different if I’m standing and seeing and we’re discussing face-to-face, and [observing] body language. . . . This supervision requires a different angle of making sure you understand, making sure you hear. . . . You can’t just electronically email and get the whole gist of what that means in supervision.”

Another problem, not directly related to COVID, was that employers did not have a great deal of direction when it came to intern supervision, so they often supervised interns in the same manner they dealt with full-time staff members. Some employers discussed the benefits of having internship evaluation materials on hand, both during and after the internship, which assisted in their reviews of intern performance, but not all employers had such tools.

In supervising their own staff members, employers decided which employees received interns based on their workloads. This was challenging throughout the pandemic, because employers felt that most of their staff members were perpetually overwhelmed. Among all employers, mental fatigue and grief were, and continue to be, issues for full-time employees, which affected their ability to take on interns, particularly in the health care industry.

### ***Obstacles to Resuming Internships***

Some of the employers indicated that they did not have enough work for interns at various points in the pandemic and that it resulted in periods of inactivity for students and an overall diminished experience; this was not reflected in the student interviews and surveys, however. Beyond that, employers felt that the typical level of professional development was hindered due to the pandemic, particularly for IT versus ET internships, which normally provide a rotational experience. Because interns could no longer move from unit to unit, their experience potentially lacked a holistic perspective on IT work.

“Yeah, it was very limited,” said one employer. “The systems analysts, the security team, the PeopleSoft programmers, they all work remotely. And typically, some of those interns would rotate to the security team and work with them for a number of weeks. But that just didn’t happen. And it’s not happening now.”

### ***Enhanced Bonding and Intern Productivity***

Despite the many challenges of hosting interns during the pandemic, employers noted several positive outcomes as well.

Several of the employers felt that the extra explanations virtual internships required, from both employer and student, enhanced those relationships by creating more opportunities for connection, leading to greater intern support, a wider network than usual, and more opportunities for mentorship.

“As we moved virtually, the line got a whole lot more blurred between my full-time team and my interns,” said one supervisor. “They all just kind of bonded together as opposed to being isolated teams . . . and the full-timers would take the interns under their wing as they were working on a problem, just to give them the exposure and experience.”

Many of the employers that accepted interns back after a pause noticed an improvement in the quality of internships overall, because they had had time to reassess their processes. Many felt that the scope of internship work had permanently expanded, and they trusted the interns’ capabilities to a greater degree. From their perspective, this resulted in increased intern productivity.

### ***Internship as COVID Staffing Support and Hiring Pipeline***

Throughout the pandemic, employers had difficulty finding money in their budgets to hire more IT employees, so interns helped to address urgent needs resulting directly from the pandemic, like distributing tech equipment or helping businesses set up remote work for employees. Some interns who were present at the start of the pandemic helped keep workplaces running in the early days of COVID. These IT employers that saw an uptick in work are now seeking to use the internships as a pipeline for full-time hiring.

Interns who learn the ins and outs of an organization’s workplace often become more attractive job candidates—a phenomenon even more important now than before the pandemic, due to the increased complexity of the workplace. As one employer said, “Nothing beats on-the-job training.” For these employers, the interns’ familiarity with equipment, software, and even terminology now gives them an even greater advantage.

### ***Increased Access to Supervisors and High-Level Staff Members***

Employers noted that because of the virtualization of the workplace, interns were able to access a higher level of leadership within their organizations, with some even receiving a greater degree of responsibility due to this wider network. Instead of attending just a 15-minute meet and greet with senior leadership, remote interns sat in on calls with leaders and interacted with them on a regular basis. This increased connection often compelled senior leadership to assign specific tasks to interns, which the employers believe made those interactions more beneficial to the students’ professional development.

### **Skill Development Opportunities**

Some of the employers indicated that out of necessity, they increased the level and scope of interns' responsibilities throughout the pandemic, which gave them more opportunities to build their resumes. For example, in the IT world, network and security interns could build their skills in both areas due to their access to a broader network of professionals. These employers felt that interns had an opportunity to rise to the occasion and demonstrate their adaptability in these situations.

## **Internships and the Transition to Technology Employment During COVID**

Interviews completed during the follow-up study revealed that many students were able to secure full-time industry positions in the technology field during the pandemic. Most survey respondents were employed in the technology industry and were satisfied with their current position. Seventy-five percent of the sample was employed—41 percent in a computer science occupation, and 70 percent in an occupation related to their field of study. Eighty-eight percent said they plan on staying in the technology field for the next five years, and 74 percent said they feel very confident or extremely confident that they can succeed in the field.<sup>13</sup> Seventy percent or more of respondents indicated that their current job is better or significantly better in terms of compensation, long-term career prospects, personal fulfillment, and work-life balance than their previous position. And a full 50 percent of the employed respondents were working remotely either part or all of the time. The survey also showed that most students did not use Gulf West's employment services to find their jobs; 61 percent got their jobs on their own. However, those students who did rely on Gulf West rated its services highly.

Several students interviewed felt that new job opportunities opened up during COVID due to expanded remote work options, which helped them to find employment. Results from the survey respondents were more mixed. Although 40 percent of respondents indicated that the pandemic did not make finding a job more difficult, 45 percent said that it did make finding a job more challenging. This discrepancy might reflect differences in the timing of their job searches, with those searching earlier in the pandemic having more difficulty than those who looked for work later, when both in-person and online opportunities began to open up again.

Students we interviewed felt that the internships helped them to prepare for and secure technology jobs. Several students were able to secure full-time positions with the company where they interned, without having to undergo a formal interview or onboarding process when transitioning. Others felt that the internship gave them opportunities to build work experiences, skills, and expertise that eventually led to their securing tech jobs. These sentiments were



reflected in the follow-up survey, in which 45 percent of respondents said they felt that their internship had been very helpful or helpful in securing their current employment.

Although internships offered advantages for some technology job seekers, others struggled to secure industry positions. Students we interviewed commonly mentioned a lack of sufficient industry experience, the competitiveness of the technology job market, and the challenges of navigating the job market during the pandemic, when job openings were in a state of flux. Though internships provided students with valuable real-world experience, some of them indicated that employers in the technology field were looking for more, and more specific, work experience than they had gotten as interns. Further, students shared that having a degree in a major related to technology was not enough to obtain a tech industry position. As one student noted: “Any technology job I tried applying for, I didn’t hear back from. . . . There are things that are missing from my work experience that would have opened doors for me. . . . What I’m being told from people who do work in parts of technology is having a piece of paper is not going to be enough to open doors for me when it comes to employment.”

Further, students lamented that the job market within the field of technology is extremely competitive. Some students looked for six months or more before obtaining a tech job and had to undergo many rounds of intense interviews before being offered a position. Although Gulf West provides students with resources such as mock interviews to help prepare them to enter the job market, some students felt that those resources were not enough to make them competitive applicants. However, the survey results indicated that few students actually used those services.

## Future of Internships

Technology internships at Gulf West continued to serve as a key bridge to technology employment during the pandemic. This may be due to the fact that internships continued to be required for graduation. With only a few exceptions, Gulf West skillfully navigated pandemic disruptions and secured technology internships for students who needed them to graduate.

Securing and supporting students in technology internships during COVID was not without its challenges. During the pandemic’s initial disruptions, some internships were canceled while others rapidly moved online. Employers had to figure out how to supervise and mentor students online even as they were shifting their own staff members to remote work. Labor market demand was in flux as some industries experienced dramatic drops in demand while others faced unprecedented increases. In the case of biomedical internships, there was a pivot from hospitals, which were not taking on interns, to biomedical manufacturers.

Once Gulf West and its employer partners had adjusted to the pandemic's initial disruptions, internships were able to resume. By the fall of 2020, a "new normal" had developed, where more than half of students were participating in online internships while others had to navigate in-person internships amid ever-changing COVID health and safety regulations.

A key area of professional growth for the online interns was the communication and project management skills they gained working virtually—skills that are likely to continue to be in high demand as organizations seek employees who can navigate the online environment. Employers also gave interns more responsibilities, challenges, and learning opportunities as they pivoted to online and remote work and were desperate to fill skill gaps. Internships provided many students with skills and experiences that helped them land their first technology job in spite of COVID's workforce disruptions.

The pandemic provided an opportunity for Gulf West faculty members and administrators as well as employer partners to sharpen their thinking about what is required for a successful internship. Many of the faculty members interviewed expressed some frustration with the internship program's infrastructure—concerns that were also expressed in our pre-pandemic research. This includes the need to constantly engage new employers and reengage former employers, and the "piecemeal" nature of matching students to opportunities. Gulf West's goals for the future include developing ongoing working relationships with local employers so that there is a set group that will take on interns on a regular basis. Other strategies that faculty members discussed include working with employers more regularly through the advisory committee, conducting student tours of employer facilities, and bringing employers to the students for panel discussions, all with the intention of improving future internships through stronger ties with employers.

Employers are focused on improving internships to the benefit of the company and students. As mentioned earlier, most employers noted that their intern searches will now prioritize communication skills—skills that, unfortunately, they feel are not prioritized by many students in technology-related fields. Many of the employers indicated that students who do not exhibit excellent communication skills (and students who "present as immature" in interviews) will no longer be given the benefit of the doubt, due to the demands of the workplace. Many employers said they will also prioritize those who have relevant online/remote work experience, particularly in the context of customer service. Community colleges could embed skills around communication through different email, chat, and project management platforms into coursework to ensure that students are better prepared for their internships.

Employers also indicated interest in restructuring internships with an eye toward reducing interns' isolation, with greater access to senior leadership and a wider network of staff members.

Some also expressed concern that they have not been doing enough to help interns develop their career goals and said that they would like to provide them with more diverse shadowing opportunities within their organizations.

Gulf West's employer partners are hoping to be able to offer more paid internships so the experience has a greater positive effect on interns' quality of life and boosts their motivation. Overall, employers indicated that requiring the internship as part of a course also motivates students to make the most of the opportunity.

## **Building Effective Technology Internships in the Post-COVID Era: Promising Practices for Community Colleges**

The pandemic provided an unexpected opportunity for faculty members, administrators, and employers to rethink their current approach to the internship requirement at Gulf West. Faculty members have learned that for many students, the requirement can be met through remote internships, in new industries, and through alternative options, like a capstone project, in certain cases. Gulf West recognizes that in order to build more effective technology internships during the post-COVID era, it needs to provide both students and employers with additional supports in the online work environment. It's an effort well worth making, given the increased opportunities for students to enter remote technology employment after graduation, and the types of skills that employers are seeking. Employers have learned that they can turn to Gulf West students to meet their workforce needs and to fill project gaps, and that a strengthened relationship with Gulf West can lead to a pipeline for employment. The following strategies, drawn from our follow-up study, could help Gulf West and other community colleges meet those goals.<sup>14</sup> While the findings were drawn from the technology program, they may be general enough to be effective in other programs as well.

### ***Strengthening relationships with employers***

**Faculty externships.** In this scenario, a faculty member would spend several weeks visiting with a local employer. Employer personnel would subsequently visit the college, where they and the faculty member would discuss career and internship opportunities with students. This approach would allow participating instructors to incorporate what they learned into the curriculum, understand the needs of the employer, and serve as a bridge to internship opportunities.

**Employer onboarding.** By all accounts, employers would benefit from having a deeper understanding of the expectations for themselves and their student interns. Community colleges

could provide this through additional employer onboarding and support. For example, they could share onboarding videos to address topics such as developing an intern scope of work; internship supervision and mentorship (online and in person); diversity, equity, and inclusion strategies to support interns on the job; and the assessment of skills developed on the job.

Employers could also be supported in developing learning objectives for the internship, which could be structured like a course, with topics introduced in sequence to build students' skills and capacity to take on challenges over time.

Finally, employers could be invited to join Gulf West's steering committees, where they could take on greater responsibility for course and program development while offering input into the skills needed to enter the technology workforce.

### *Strengthening support for students*

**Virtual-work skills.** Community college classes could incorporate the development and assessment of online and in-person communication, teamwork, and professional skills. This would give all students exposure to such skills before the internship. Activities such as group projects, role-playing, and other active practice-oriented approaches, along with instruction on the project management and communications technologies organizations use, could better prepare students for internships.

**Flash work-based learning experiences.** These are one- or two-week work-based learning experiences early in a student's internship program and possibility throughout their two years of study, where an intern receives an overview from various units within an organization without having to commit to one unit for their entire internship. Flash work-based learning experiences are conducted in a rotational format and provide professional development along with a snapshot of a given career track. This approach could be used to incorporate more ongoing work-based learning experiences into technology classes, which would give students opportunities to learn more about career pathways within ET and IT and organizations where they might want to apply for their internship.

## **Conclusion**

Internships at Gulf West proved to be resilient even during the most disruptive periods of the pandemic. This resiliency came in part from Gulf West's agility in working with employers and its ability to pivot internships to virtual platforms; develop internship alternatives when the pandemic drastically reduced opportunities; and then build them back up as the college, students, and employers began to adjust to working during COVID. It is likely that the

internships' resiliency can also be attributed to the fact that they are required for ET and IT graduation. Gulf West applied resources, staff members, and creativity to keep the internships going during pandemic disruptions and beyond. As a testament to this agility, students reported even higher satisfaction with internships during the pandemic than they had pre-pandemic, and more than half of survey respondents reported that their internship either directly led to a technology job after graduation or provided them with necessary skills to successfully pursue technology employment. Still, securing technology jobs after graduation was not easy, and it is an area where more college outreach and support for students would likely strengthen employment outcomes.

## Appendix

### Gulf West Technology Enrollment and Graduation During COVID

Like other community colleges nationally, Gulf West faced a drop in technology program enrollments during the pandemic. Between the fall of 2020 and the fall of 2021, Gulf West's ET enrollments fell 20 percent, and IT enrollments fell 8 percent. (Nationally, ET enrollments fell 15 percent, and IT enrollments fell 6 percent during the same time period.) At Gulf West, enrollment share dropped more for white students (from 63 percent pre-COVID to 57 percent after its onset), while Latinx and Black student shares of enrollment remained mostly unchanged (13 percent for Latinx students pre-COVID, compared with 14 percent afterward, and 13 percent for Black students before and during the pandemic). Women's share of enrollment rose from 22 percent pre-pandemic to 27 percent. The percentage of students who left Gulf West without graduating rose slightly during the pandemic, to 52 percent, compared with 51 percent pre-COVID; and the graduation rate fell from 24 percent pre-COVID to 18 percent during the pandemic. However, a smaller share of both women and men switched out of the technology program during COVID—25 percent of women and 19 percent of men pre-COVID, compared with 23 percent of women and 17 percent of men after COVID's onset.

## Endnotes

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<sup>1</sup> Lois Joy, 2022. Building Effective Technology Internships. JFF. Boston, MA  
<https://www.jff.org/resources/building-effective-technology-internships/>

<sup>2</sup> “Employers Made Changes to 2020 Summer Internships Due to COVID-19,” National Association of Colleges and Employers, October 19, 2020, <https://www.nacweb.org/talent-acquisition/trends-and-predictions/employers-made-changes-to-2020-summer-internships-due-to-covid-19/>.

<sup>3</sup> Amanda Stansell, “U.S. Internship Hiring Cut in Half Since COVID-19 Crisis,” Glassdoor, April 28, 2020, <https://www.glassdoor.com/research/internship-hiring-coronavirus/>.

<sup>4</sup> The Wisconsin Center for Education Research has drawn on its prior research to develop best practices for online college internships during the pandemic. See “What to Do About Internships in Light of the COVID-19 Pandemic? A Short Guide to Online Internships for Colleges, Students, and Employers,” available at [https://wcer.wisc.edu/docs/news/CCWT\\_report\\_COVID-19\\_Internships.pdf](https://wcer.wisc.edu/docs/news/CCWT_report_COVID-19_Internships.pdf).

<sup>5</sup> *NACE Report: COVID-19 Quick Poll Series* (Bethlehem, Pennsylvania: National Association of Colleges and Employers, October 2020), <https://www.nacweb.org/uploadedfiles/files/2020/publication/nace-covid-19-quick-poll-series-report.pdf>.

<sup>6</sup> Matthew T. Hora, Changhee Lee, Zi Chen, and Anthony Hernandez, *Exploring Online Internships Amidst the COVID-19 Pandemic in 2020-2021: Results From a Multi-Site Case Study*, working paper no. 2021-5, Wisconsin Center for Education Research, Madison, Wisconsin, June 2021, [https://wcer.wisc.edu/docs/working-papers/WCER\\_Working\\_Paper\\_No\\_2021\\_5\\_4.pdf](https://wcer.wisc.edu/docs/working-papers/WCER_Working_Paper_No_2021_5_4.pdf).

<sup>7</sup> Gulf West Community College is a pseudonym we used to protect the confidentiality of the college and the staff, faculty, students, and employers interviewed.

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<sup>8</sup> Even though the internship was required at Gulf West, participation rates fell below 100% especially early in the decade as the program was starting up. Some students received internship credit for prior work experiences while others were given alternatives like a capstone project when the internship was not feasible due to their work or family circumstances.

<sup>9</sup> These data are based on author analysis of Gulf West and Gulf East administrative data.

<sup>10</sup> In the follow-up student we interviewed 16 students. The demographics of these students were as follows: three women (19%) and 13 men (81%); five Black students (31%), one Asian student (6%), and 10 white students (63%). Thirteen of the students had graduated from the technology program while three had not. In the initial study, we interviewed 30 students. Demographics from this initial sample included eight women (27%) and 22 men (73%); and four Black (13%), sixteen white (53%), and three Asian (10%) students, as well as seven students with no racial or ethnic information (23%).

<sup>11</sup> Respondent demographics from the initial survey included 36 women (20%), 125 men (70%), and 18 students with no gender information (10%); 18 Black students (10%), 32 Latinx students (18%), 95 white students (53%), 15 Asian students (8%), and 19 students with no racial or ethnic information (11%). Respondent demographics from the follow-up survey included 17 women (21%), 54 men (67%), and 10 with no gender information (12%); and nine Asian (11%), eight Black (10%), 10 Latinx (12%), one multiracial (.01%), and 42 white (52%) respondents, plus 11 respondents with no racial or ethnicity data (14%).

<sup>12</sup> There were no significant differences in the survey responses by gender. Differences by race and ethnicity could not be determined due to small sample sizes.

<sup>13</sup> It should be noted that the high technology employment and satisfaction rates may be the outcome of survey sample selectivity. More specifically, we don't know the employment outcomes of the 60% of students who did not respond to our survey. If employment in technology and satisfaction with employment is correlated with participating in the survey, these findings may overestimate these factors.

<sup>14</sup> For additional strategies please see: <https://www.jff.org/resources/building-effective-technology-internships/>