Virtual Internships: Accelerating Opportunity Through Disruption

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Abstract

Experiential learning programs like internships and capstone projects are high-impact practices that allow engineering students to build a professional network, apply technical skills in a real-world context, and develop non-academic skills that employers need. In 2020 the COVID-19 pandemic and subsequent school closures impacted the entire engineering education ecosystem, particularly internships and other experiential learning opportunities.

Virtual internship, an education intervention developed to broaden participation in experiential learning for non-traditional students, was rapidly deployed to address the disruption to internships caused by the COVID-19 pandemic. Key challenges that emerged during the implementation process include marketing the new program to existing partners, deciding on a remuneration structure, and navigating IP issues. The paper systematically steps through the implementation process and how the challenges mentioned above were addressed in practice.

As life, school and internships return to normal in 2021 and beyond, the Virtual internship intervention can still play a valuable role in the experiential learning landscape. However, higher education institutions may need to intentionally de-couple the educational innovations rapidly developed during the COVID-19 pandemic from being 'pandemic solutions' to valuable alternatives that provide equitable and scalable access to educational opportunities and proactively invest in their continued sustainability and growth.

Introduction

Beyond the catastrophic effects on public health and the economy, the onset of the COVID-19 pandemic in the US during late winter and early spring 2020 essentially shut down access to experiential learning and internships for university students [1], [2], [3]. By mid-May 2020, a large percentage of previously confirmed internships for summer 2020 were rescinded. A National Association of Colleges and Employers survey in April 2020 found that employers were revoking two-thirds of their summer internships, and many of those that remained moved interns into virtual programs (46.2%) and reduced the length of internships (41%) [4]. Companies could not have interns working on-site due to in-person activities being significantly reduced or prohibited by public health mandates. Budgets were frozen or slashed to give companies time to understand the pandemic's potential and actual impacts [4]. Companies did not have the experience, expertise, or systems to engage and support interns within their new remote work context.

In this evidence-based practice paper, the authors share their experience implementing a virtual internship intervention in a four-year public university engineering school. This implementation of an existing virtual internship intervention was named InternSHIFT. This paper will outline the broader context that resulted in implementing this virtual internship program for engineering students, describe the virtual internship intervention itself, outline the virtual internship model's mechanics, and how the model addressed an acute need during the COVID-19 pandemic. Moreover, it will provide an overview of the implementation journey, specifically highlighting challenges that arose within the broader institutional and industry partner ecosystems and how they were addressed. Finally, it will discuss how the intervention, now established, could be used to open up access to experiential learning—especially for non-traditional, international, and traditionally underserved minority students.

Broader context

Economists find that entering the workforce in an economic downturn has short-term salary implications and impacts an individual's earning potential throughout their entire career [5], [6]. The analysis found that entering the workforce in a recession "implies an initial loss in earnings of about 9 percent that halves within five years and finally fades to zero by ten years" [6, p. 4]. In addition to the salary implications, Schwandt and von Wachter [7] find that entering the workforce in an economic downturn impacts health, mortality, economic wellbeing, and personal wellbeing in midlife. Despite the staggering 'unlucky' impact of entering the workforce in a recession, awareness of the short- and long-term effects enables policymakers and individuals to short circuit the longer-term effects through policy development and practical action [7].

Studies show that academic achievement explains only about 17% of job earnings in adulthood [8], [9], [10]. This statistic, coupled with growing evidence that non-academic skills play a more significant role in determining wages than academic skills [11], suggests focusing on non-academic skill and mindset development could short-circuit the impact of entering the workforce in a recession. Cooperative and experiential learning help students build a professional network and the non-academic skills and mindsets, like teamwork, critical thinking, and a growth mindset, that employers are looking for and need. Thus, providing a strategic competitive advantage for job seekers [12], [13] and a practical solution for mitigating some of the long-term impacts for students entering the workforce during and immediately post the COVID-19 pandemic. However, the market downturns, the rapid shift to remote work, and overall uncertainty about the future during the COVID-19 pandemic led to a decrease in these vital experiences and educational opportunities when they are most needed [1], [2], [3].

The virtual internship intervention

In 2017, long before the COVID-19 pandemic, a Northeastern University research team began a project aimed at broadening participation in experiential learning for non-traditional and traditionally underserved students. This research intent emerged out of the researchers' professional context in a college of professional studies whose mission is "to provide access to education for a diverse community of part-time, working and returning students—without

requiring them to pause their professional lives" The college of professional studies sits within a higher education institution known for its use of experiential learning throughout the whole institution. The research team started by examining alternative and technology-enhanced models of experiential learning. Using a design-based research methodology [14], the team started with a baseline of XN an industry engaged capstone project model currently implemented at Northeastern University, with the intention of examining the model and using a design-based research methodology to re-design it with equity and access as a core value. The re-designed experiential learning intervention is called a virtual internship. In a virtual internship, students work individually or as part of a project team to complete a project for an employer partner. The virtual internship intervention and technology, described in detail by James, Humez and Laufenburg [12], leverages a purpose built technology platform to support employer partner feedback [15], structure student's reflection and metacognition [16], [17], and provides educators with real-time learning analytics to support students and employer partners when required [18], [12].

To better address the needs of non-traditional and traditionally underserved minority students, the research team developed a set of design principles that attend to these students' particular needs. The design principles include:
- The ability of a student to participate in the intervention without leaving existing full-time work
- The ability to complete work related to the intervention around family, study, and work commitments
- The inclusion of structure, scaffolding, and support for learners that may be encountering a professional work environment for the first time.

As a result, the virtual internship intervention (hereafter referred to as 'the intervention) is designed to be embedded into for-credit courses. The bulk of the students' work is project-based to be completed around existing work and personal commitments. This decision also enabled students to double the impact of their time investment in the project. They received both academic credit and vital industry experience simultaneously.

In April 2020, the COVID-19 pandemic and the subsequent abrupt transition to remote learning clashed with the final year of the Northeastern University research team's project. The intervention was ready to be tested at the next level of scale, and the majority of undergraduate students' education had transitioned to remote learning. In essence, most undergraduate students became non-traditional learners overnight. The research team decided to open up participation in the research project, affording the ability to test the intervention at the next level of scale while simultaneously addressing the imminent need for alternative experiential learning models. In addition to opening up participation in the research project, the possible implementation contexts were broadened to include summer internship programs and co-curricular activities supported by career services offices. Pre-COVID the intervention was implemented in four community colleges in Massachusetts and served 167 students, 19 employer partners, and seven faculty over three years. There are 16 institutions at various stages of implementation at the time of writing. One hundred forty-six students have been served with a virtual internship supported by 36 employer partners and 17 faculty, with exponential growth expected in Spring and Summer 2021 (see Figure 1 below).
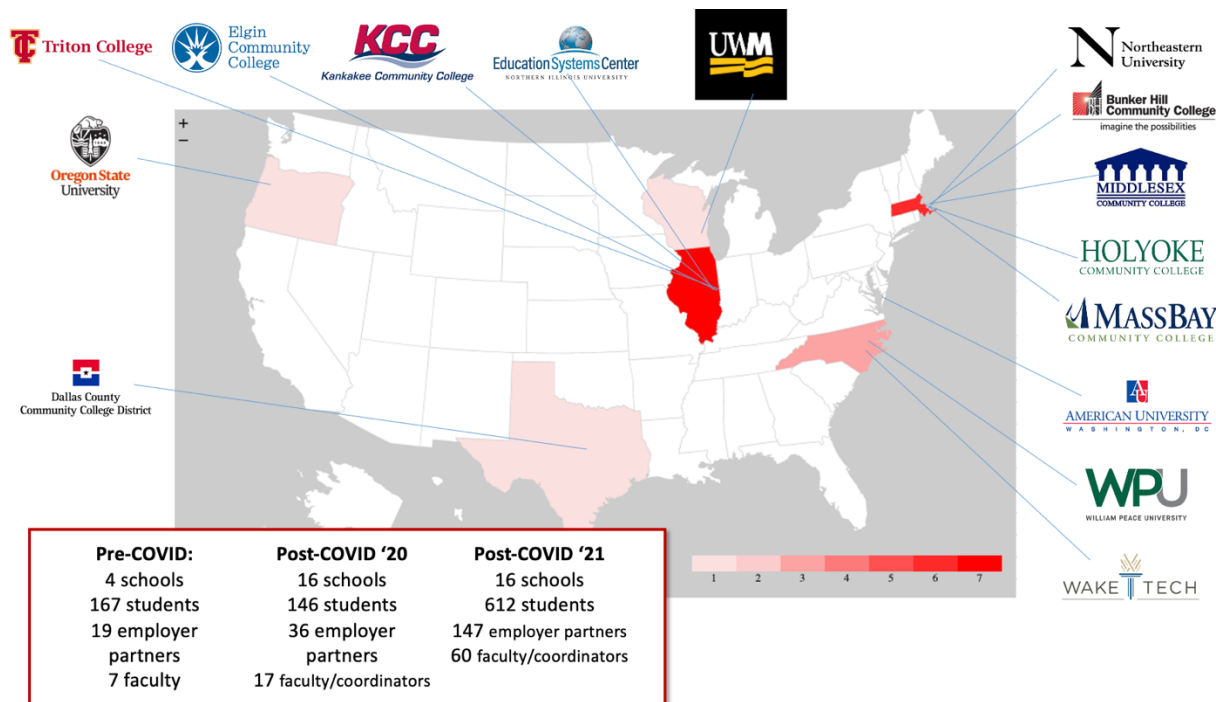
Figure 1: Virtual internship adoption map

The mechanics of the virtual internship intervention

The intervention leverages a commercial technology platform called Practera. The Practera platform is explicitly designed to support educators, employer partners, and students (or interns) as they collaborate in experiential learning programs. The platform was created in collaboration with experiential educators worldwide and was integrated into the intervention in 2018. The intervention leverages Practera to:

- mediate the three-way relationship between an employer partner, the educator, and the student/s.
- provide the educational scaffolding to empower students who have not previously worked on employer projects with the skills and perspective to successfully contribute in a work environment—especially when navigating as a remote worker.
- provide the educator with real-time learning analytics designed to unearth collaboration issues, track each student's progress, and support employer partners, allowing the educator to be an active partner as the virtual internship unfolds.

In addition to the technology enhancement, the intervention includes an employer project library, four virtual internship structures that educators can use as a baseline and customize, a resource library that includes marketing materials, template syllabi, assessment outlines, rubrics, and a professional development program.

The employer project library

In the early stages of the research project, it became evident that the design of the project that students worked on during their virtual internship was critical to the success of the virtual internship for educators, employer partners, and students. If the project did not align with the course's learning objectives, it did not meet the educator's expectations. If the project was too difficult or complex for the students to complete within the time allotted, the virtual internship became a stressful experience instead of a learning experience. The quality of the work produced for the employer partner was often lacking. Finally, if the students' work did not meet the expectations of the employer partner, those partners did not have a positive experience making it difficult to get them to participate again in the future.

As a result, the research team collaborated with educators at partner institutions and employer partners and developed a library of 'template' projects. The template projects align with common undergraduate courses' learning objectives, the knowledge, skill level, and past experience of students who take those courses, and common needs of employer partners. These template projects were tested by educators and employer partners and adjusted as required (see Figure 2 for a sample from the project library)
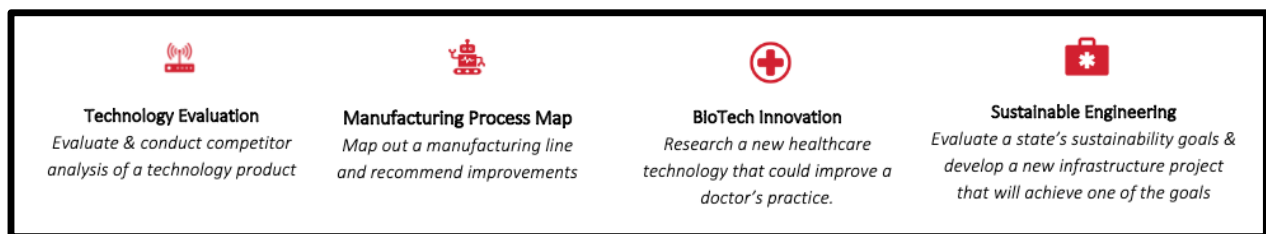

Technology Evaluation
Evaluate & conduct competitor analysis of a technology product

Manufacturing Process Map
Map out a manufacturing line and recommend improvements

BioTech Innovation
Research a new healthcare technology that could improve a doctor's practice.

Sustainable Engineering
Evaluate a state's sustainability goals & develop a new infrastructure project that will achieve one of the goals

Figure 2: Sample projects from the project library

Virtual internship structures

A key challenge in industry-engaged experiential learning is the complexity of the administration, management, and communication between the educator, employer partners, and student/s [12]. Practera can play a role in automating, streamlining, and monitoring these processes if the educator and employer partners participating in the program agree to a generic structure before starting the program. Some of the decisions included in the development of a generic structure include:
- the length of the program,
- how many times the industry partners will provide feedback to the students,
- whether the students are working individually or in a team,
- the role industry partner feedback plays in grading and assessment (if any)
- how frequently students' complete reflections and what is the target of the reflection point (e.g., Career exploration and non-academic skill development)

Once these decisions are made, Practera is set up to automate and streamline these processes and monitor each student, team, and employer partner as they progress through the program. Each of these decisions has tradeoffs when attending to the educator, students, and employer partners' expectations. For example, more feedback points from the employer partner can result in student work that is more closely aligned to their expectations but increases the time investment.

Similarly, more reflection points will help students extract more learning from their virtual internship but could result in less time being spent on the project itself.

To address this challenge, the research team, in collaboration with educators and employer partners, developed four pre-built virtual internship structures (see figure 3). The four pre-built virtual internship structures were developed using a design-based research methodology. The researchers worked with facilitators to make relevant design decisions and run a pilot virtual internship. At the completion of the virtual internship the research team conducted interviews with students, employer partners and facilitators before evaluating the initial design decisions made (duration, number of feedback points, number of reflections) in light of data captured about the experience of each stakeholder. The research team then discussed potential changes with the facilitators and made adjustments to the design before re-running the virtual internship again. As a result, educators can now select one of the four pre-built structures that emerged and embed it into their course or use the pre-built structure and make adaptions to suit their needs. Developing these pre-built structures decreased the implementation time and complexity for educators who were interested in implementing the intervention into their course.

	6 WEEKS	12 WEEKS
INDIVIDUAL	4 employer feedback points 3 Self-assessments on non-academic skills 2 Skill Development Plans 1 Reflection 40hrs of Learning Content	4 employer feedback points 4 Self-assessments on non-academic skills 3 Skill Development Plans 1 Reflection 50hrs of Learning Content
TEAM	4 employer feedback points 3 Self-assessments on non-academic skills 2 Peer-assessments on non-academic skills 2 Skill Development Plans 1 Reflection 40hrs of Learning Content	6 Structured Supervisor feedback points 4 Self-assessments on non-academic skills 3 Peer-assessments on non-academic skills 3 Skill Development Plans 1 Reflection 50hrs of Learning Content

Figure 3: The four virtual internship structures

The resource library

The virtual internship resource library creation followed a similar approach to the employer project library and virtual internship structures. As the research team worked with educators to implement the intervention, it became evident that there were various documents and artifacts that educators needed to create to implement a virtual internship into their course effectively. To support existing and future educators, the research team created a resource library that includes:
- Template syllabi, assessment descriptions, and rubrics educators could use to use a virtual internship as an assessable item in their course,
- Template employer partner recruitment materials that educators can customize and use to recruit employer partners.

Professional development program

The most recent addition to the intervention is an asynchronous professional development program that steps educators through the intervention's mechanics and how to use Practera, specifically the learning analytics dashboard. After learning about the mechanics of the intervention, the professional development program steps educators through the process of planning and piloting it in their class or as a co-curricular program (See Figure 4).

Implementing virtual internships into a new educational context

Module	Topic	Description	Assessments
1	Syllabus, Personal Goals	Course Overview and Introductions	Goals & Objectives
2	Experiential learning 101	Understand the intention behind work-based learning interventions	
3	Virtual Internship Design Mechanics	Unpack the mechanics that underpin the work-based learning designs and how they achieve the intention.	Reflection: Work-based learning & My Teaching Practice
4	Teacher Identity, Perspectives and Behaviors	Explore your beliefs about learning and teaching and how they impact the way you implement work-based learning into your classroom	
5	Learning Centred Design & Facilitation	Consider where students are in their educational journey when they come to your work-based learning and how to consider this in your implementation decisions.	Design Decisions Document
6	Implementation Planning & Evaluation	Plan your pilot implementation and evaluation process.	Implementation Plan Evaluation Plan

Figure 4: Virtual internship professional development program overview

Sustainable implementation

The research project's core objective is to develop an educational intervention that is sustainable and continues to spread beyond the completion of the research project. Literature focused on sustainability and scalability of educational innovations suggests that sustainability within the curated research context works, however efforts to expand beyond these curated research contexts presents significant challenges and often result in failure [19], [20], [21]. A tension that contributes to the challenge faced while trying to sustain and scale an educational intervention in multiple educational contexts is between maintaining the efficacy of the intervention [22] while allowing educators the agency to adapt the intervention when using it in their classroom [21].

A case study analysis conducted by Jona & James (2021 accepted) found that educators' beliefs about learning play a role in the intervention's learner experience. The intervention embodies a constructivist approach to learning. The analysis characterized two educators' moves when implementing the intervention in their course. One aligned with the constructivist perspective that the intervention embodies, the other aligned with a didactic perspective of learning. Both implementations of the virtual internship are sustained at the time of writing. However, the

experiences of students in these two implementations are markedly different. Further examination is needed to understand the specific impact these different approaches to implementation have on students learning outcomes.

In addition to challenges inside the classroom that impact sustainability and continued growth, there are also operational challenges in the broader educational institution. In a virtual internship that includes employer partners, operational challenges extend outside the institution to the employer partner's organization. The following implementation journey at Oregon State University College of Engineering characterizes these challenges and how they were overcome in practice.

The implementation journey at Oregon State University College of Engineering in summer 2020 and beyond

As noted above, summer internships in 2020 were being rescinded and shortened at a fast pace. Given the significant loss of one-time internship placement hiring and placement through well-established internship partnership programs, the Oregon State University team quickly established a relationship with the Northeastern University research team and became a research partner. Once the agreement was in place, the Oregon State University team went to work to determine how best to implement the intervention that would offer a new approach to employer partners interacting with students via real-world projects. The implementation journey narrative to follow outlines three rapid implementations, the flexibility enabled by InternSHIFT, design changes made, and lessons learned; and follows the timeline outlined in Table 1 below.

	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar
Traditional Summer Internships		——————————									
Summer InternSHIFT 7 x 6 weeks projects, staggered start dates			——— ———								
Summer Internship + InternSHIFT Extensions	————— In-person summer internship				————— Extended into the academic year using InternSHIFT						
Fall InternSHIFT 2 x 6 weeks 1 x 6 weeks extended to 10 weeks 7 x 10 weeks						——— —— ————					
Winter InternSHIFT 1 x 10 weeks									———————		

Table 1: InternSHIFT Projects Timeline

Phase 1: Recruiting employer partners

Given the unprecedented nature of the COVID-19 pandemic and its enormous economic impact across nearly every sector, an immediate focus for the pilot phase of the implementation journey was as a bite-size part-time project with a low cost to participating employer partners. Many

organizations could no longer consider a 12- or 14-week full-time summer internship. However, a six-week experience for a student working 10-20 hours per week at a set cost was much more palatable. Also, given an extremely unpredictable time and short runway to implement an alternative, focusing on six-week experiences allowed the Oregon State University College of Engineering enough time to get some essential program details in place (discussed throughout the rest of this paper).

Since this new approach would be fully remote and would also be a very different scope of experience (six weeks for 10-20 hours a week—or 60-120 total hours), it was essential to distinguish it as something different from a traditional summer internship. The concept of an innovative *shift* took hold, and Oregon State University College of Engineering's Intern*SHIFT* program was born. The program promised a set price to engage a student part-time for six weeks with a compelling project. InternSHIFT provided an attractive alternative for any partners who were no longer able to take on full-time summer interns and helped to offset the loss of more than 30% of placements. It may also help prevent the potential short and long-term effects COVID-19 will have on current students' career and earning potential.

The InternSHIFT program was promoted to potential employer partners as distinct from a traditional internship, with the focus on providing an educational project for the student and supporting a student through this unusual time, and with an emphasis on the benefits to the employer partner of building talent pipelines and advancing a project. One key advantage of the program for employer partners was the provision, via Practera, of a university coordinator and built-in scaffolding to support the intern and assure engagement.

In early June, the Oregon State University team began contacting current employer partners to present the InternSHIFT concept and identify potential projects. Other marketing channels, including LinkedIn postings and personal contacts via phone calls, were used to engage new employer partners. As inquiries were received, virtual meetings were held with each potential partner, explaining its benefits and outlining the program.

Phase 2: Matching students to employers and kicking off the projects

By late July, with five firm project commitments and two more on the way, the Oregon State University Team began soliciting student applications. A summary project list was provided to students Applicants submitted a resume, an unofficial transcript, a professional or academic reference, a general statement of interest in program participation, and indicated project(s) of interest to them and their availability for up to 20 hours per week during the specified 6-week timeline or requested specific exceptions. With a 4-day application window in late July, 115 student applications were received. College of Engineering staff, including the Assistant Director of the College Career Center, reviewed the applications, matched two or three students to each project, and forwarded their information to their respective employer partners. Employer partners then interviewed and selected the student to work on their projects.

The project start dates ended up being staggered due to a couple of factors. One was the ability of the employer partners to respond quickly to selecting a student. A second major factor was international students' need to apply for their curricular practical training (CPT) approval. As a

result, two projects began on the planned August 3 date, and the two projects which were still pending when students applied had an August 17 start date. A fifth project started in late August with a national laboratory. This student was funded from a current grant active at the university. The selected student was an international graduate student who was overseas at the time, and the delayed start was due to the processing time for CPT, security, and grant paperwork. This student could begin the internship overseas and complete it after returning to Oregon State University for the Fall term. The last two projects involved direct hiring by the employer partner and did not utilize the technology platform due to company security concerns. These began in late August and ended in early October. One of these two students was also an international student.

Phase 3: Supporting employer partners & students through project delivery

As the employer partner, project timelines, and student participant selections were finalized, the College of Engineering Career Development team (CD Team) entered these specifics into Practera. Employer partners and students were paired together, allowing for basic workforce engagement and an agreed timeline of tasks, including submission points for formal feedback, reflective checkpoints, and employer partner/student interactions.

Leveraging Practera allowed the CD Team to support employer partners and students by:
- providing feedback to the student on their workforce participation,
- reviewing non-academic skill development plans,
- help monitor and support employer partner/student communication and engagement

Practera provided a powerful and sophisticated toolkit for submitting work produced by students, review and feedback cycles on the work submitted, and employer partner/student communication (for a detailed description of how Practera supports virtual internships, see [12]) The CD team simultaneously learned how to best leverage the technology while supporting the employer partners and students. This learning curve did present some challenges. While student feedback on the platform itself was quite positive, employer partners did, on occasion, fall back on extra-platform communications (direct email messages and attachments) if it was unclear at the moment how to leverage Practera's capabilities to its full extent.

Challenges that arose during summer 2020 implementation

Throughout the implementation process, the Oregon State University Team experienced many challenges that needed to be addressed rapidly. The Oregon State University Team first used InternSHIFT as an adaption to a summer internship in engineering, a context where interns are paid for the work they produce. The transition to remote work that InternSHIFT enabled presented some unexpected challenges when it came to:
- Student compensation for completing employer projects
- Employment structure for students selected to complete an employer project
- Intellectual Property (IP) and software licensing issues

Student compensation for completing employer projects

The initial pilot phase of InternSHIFT was designed and marketed to employer partners as an opportunity to support student learning, with no guaranteed outcomes or deliverables. While not using a traditional summer internship employment model, projects were expected to be scoped by the employer partner to involve 10-20 hours per week of work by a student for six weeks, or approximately 100 hours of work.

Consultation with Oregon State University's General Counsel suggested that, although InternSHIFT was a learning program, marketed as such and employer partners were not guaranteed an outcome, students completing the project should not receive compensation lower than the state's minimum wage. With this in mind, each student received a $1500 stipend. The stipend amount was fixed and was de-coupled from an hourly wage, with the goal of students receiving funding equivalent to an effective hourly rate that at the very least (at 120 hours) exceeded the local state's minimum wage of $12 per hour [24] (Oregon Bureau of Labor and Industries, n.d.), but that ideally (at ~80 hours) was closer to that of a typical engineering internship.

Employment structure for students selected to complete an employer project

The effort to make sure the financial mechanics fit within existing labor laws extended beyond monetary compensation to how the monetary compensation would be administered. Internal development efforts initially focused on determining the financial model for compensating students that would best fit the current situation – especially the time and virtual work constraints. A scholarship model where the compensation was applied to their university bill, a stipend model and direct employment by the university and the employer partner were all considered. Direct employment by the employer partner was quickly ruled out due to the short timeframe. An employer partner-funded scholarship option was financially favorable for the employer partner. However, constraints related to scholarship funds did not allow the employer partners to select the student they wanted to complete their project, departing too far from an internship's usual nature. An exploration into the possibility of students being employed by the university unearthed potential IP issues that made this approach problematic. These issues were not examined in detail due to the rapid nature of the implementation. Still, it did appear that if the university employed the student, the student's work may belong to the university and not the employer partner. There was also a concern about InternSHIFT agreements conflicting with existing agreements the university had with employer partners.

After exploring each of the models mentioned above, the Oregon State University Team settled on direct stipends to students. The stipend was to be paid out near the project's completion and funded by a one-time payment to the university by the employer partner. This stipend model was well-received, especially by smaller companies. One surprising exception was that one company with a well-established internship program chose to run two InternSHIFT projects and directly hire their two students using the Oregon State University -provided applicant pool. This situation was an essential element of the exploration and played a role in adjusting the financial model after the first implementation of InternSHIFT.

Intellectual Property (IP) and software licensing issues

In addition to the IP considerations while deciding on the employment structure, other challenges were unearthed related explicitly to proprietary software. Students at Oregon State University School of Engineering have access to educational licenses of proprietary software packages used by engineering professionals. Access to these software packages to use for assignments and projects enables students to enter the workforce with a good working knowledge of these tools. However, educational licenses of proprietary software are not able to be used for commercial reasons.

One unforeseen challenge faced during the first implementation of InternSHIFT was an incorrect assumption by students and employers about their ability to use the educational versions of these software packages, already installed on their computer, to complete the employer project. In a traditional summer internship, an intern would be at the employer's office using the employer's resources, like commercially licensed versions of the software. This challenge came up after an InternSHIFT student was already mid-way through the project. Fortunately, the employer could purchase an additional commercial license the student could use to complete the project. But this may not be the case for other employers and was noted as something that needed to be discussed during the employer partner recruitment phase.

Continuation of InternSHIFT into the 2021 academic year

One benefit of InternSHIFT being a virtual project that students can complete in 60 - 120 hours is that students can participate in InternSHIFT alongside their course work. After successfully launching the summer InternSHIFT program, the Oregon State University Team made a few rapid changes to the structure, set program dates to align with their term-based academic calendar, and began recruiting employer partners for fall and winter terms.

Rapid iterations to the InternSHIFT structure

Some of the implementation challenges encountered in summer 2020 were a direct result of the tight timeline needed to launch a successful summer program. Others were complications associated with the implementation choices made and needing to be revised. The Oregon State University Team experienced challenges invoicing employers for the agreed stipend and subsequently paying out stipends to students. Allowing employer partners and students to start their projects on multiple start dates proved problematic when monitoring keeping track of projects and students and employer partners' engagement.

As a result of the summer's implementation challenges, three significant changes were implemented for the academic year program.

1. The program changed from the stipend model to a direct-hire model, eliminating university staff's need to screen applicants.
2. Offering both 6- and 10-week project length options, allowing for employers to submit 60- and 120-hour projects.
3. Extending the time available for employer partners to select and onboard the student.

Direct hiring also helped avoid data confidentiality, IP, and software licensing issues (mentioned above) in that the student's employer gains greater control over these items.

InternSHIFT in the 2021 academic year

The Oregon State University team recruited seven employer partners in the fall term, more than the summer implementation (see table 2 below). Three participating employer partners hired two students each, resulting in 10 projects (three 6-week and seven 10-week) available for students. Midway through the fall term, one of the 6-week projects was extended into a 10-week project. One project was an extension of a successful summer internship. The employer partner retained the intern as a part-time remote worker during the fall term utilizing the InternSHIFT program to manage that intern's remote project. This particular employer partner also extended their participation into winter term with the same intern. Once again, the Oregon State University Team had an oversupply of applicants. One hundred thirty applications were received for nine competitive project placements. Project start dates were all in mid-October and ended either at the end of the fall term (6-week projects) or the calendar year (10-week projects).

	Employer Partner Projects	Student Applications
Summer 2020	7	115
Fall 2020	10	130
Winter 2021	2	29

Table 2: Employer Partner Projects and Student Applications

The winter term ended up being problematic. Despite using the same InternSHIFT model and employer partner recruitment channels, the Oregon State University Team was only able to recruit one additional project (in addition to the project extension mentioned above). It is unclear why projects seemingly "dried up" in winter, but some possibilities are Zoom burn-out, holiday considerations, and other hiring priorities and schedules. Winter project proposals were due just before Thanksgiving, with a year-end hiring deadline and a January 4 project start date. Running InternSHIFT in parallel to Oregon State University's quarter system also presented some implementation challenges, including the need to run three projects from September through June. Despite only having one available project in the Winter term, student interest has remained strong.

Employer partner interest in InternSHIFT has continued to wane in Spring. Some possible causes include limited marketing resources and perceived anticipation by potential employer partners that in-person activity will soon be possible, making virtual and remote opportunities less of an immediate priority. Summer project recruiting is underway as this paper is being written. The InternSHIFT offering for the upcoming academic year is currently being reviewed for improvement opportunities. A late spring/early summer marketing initiative is planned. Programmatic improvements that simplify the employer partner onboarding process are being considered. The changes' objective is to facilitate InternSHIFT engagement throughout the year, including an annual registration option for both employer partners and students.

Essential Learning and Future Potential

The rapid implementation journey of InternSHIFT by the Oregon State University School of Engineering during the COVID-19 pandemic provided a unique opportunity to unearth and examine challenges faced when implementing, sustaining, and spreading [21] an education intervention. The implementation journey highlights that the challenges or barriers that are often perceived as insurmountable can be overcome (quickly) if needed.

Two interesting learnings came through the employer partners. One partner extended their engagement with their summer intern through the school year using InternSHIFT (mentioned above). This internship extension option could be a potential marketing point for the 2022 academic year program. This first iteration of the academic year program including a summer internship extension suggested a possible role InternSHIFT could play in extending summer internships throughout the academic year. However, the perceived return to 'normal' may have impacted employer partner interest in the program and decreased the time and attention of resources and time invested in InternSHIFT by the Oregon State University Team as 'normal' summer internship recruiting resumes.

It appears that perhaps the imperative for educational innovations during the COVID-19 pandemic is changing direction as the world begins to see the light at the end of the COVID-19 tunnel and starts clinging to the hope of a return to normal. The question then becomes, how might the benefits of educational innovations developed out of necessity during the COVID-19 pandemic be de-coupled from the proverbial return to 'normal'? InternSHIFT was developed as a replacement for a traditional in-person summer internship. It did not explicitly address access issues for non-traditional or traditionally underserved students. However, the impact the perceived return to 'normal' has had on employer partner interest in a program that is accessible to non-traditional students and has built in educator support for students who may not have experience in a professional work environment may be a missed opportunity in the journey towards equity and access. As employer shift back to normal, will they inadvertently be leaving some students behind? How might engineering educators play a role in monitoring the progress back to normal? How might engineering educators advocate for retaining educational innovations that emerged when traditional students' access to internships was threatened so that those whose access issues remain in place post-pandemic can be better served by innovations that emerged from it?

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