

Re-envisioning work-integrated learning during a pandemic: Cincinnati's experiential explorations program

ERIK R. ALANSON¹

ERIN M. ALANSON

BRITTANY ARTHUR

AARON BURDETTE

CHRISTOPHER COOPER

MICHAEL SHARP

University of Cincinnati, Cincinnati, USA

In response to COVID-19 the Division of Experience-based Learning and Career Education at the University of Cincinnati embraced flexibility and innovation to expand on the existing practice of facilitating cooperative education employment experiences for students to re-envisioned opportunities that considered student wellbeing as the paramount tenet. This process created opportunities for faculty-scholars, administrators, and students to work collaboratively considering new forms of work-integrated learning while maintaining the academic rigor of the founding program of cooperative education. This case study describes the broad offerings of WIL at the University of Cincinnati and outlines the process of re-contextualizing WIL responding to limitations dictated by a global health crisis. New curricular offerings within the Experiential Explorations Program including the Serve-IT initiative, virtual apprenticeship initiative, upskilling initiative and micro-co-op model are discussed. The authors comment on innovative forms of WIL born out of unprecedented circumstances and share recommendations for ways in which WIL educators can continue facilitating rich work-integrated learning.

Keywords: COVID-19, cooperative education, internships, experiential learning, work-integrated learning

TRADITIONAL WORK-INTEGRATED LEARNING AT THE UNIVERSITY OF CINCINNATI

The University of Cincinnati (UC) recognizes that learning from experience is a mechanism through which human beings construct knowledge and apply that knowledge to their chosen field and/or career pathway. Further, UC's belief is that work-integrated learning (WIL) is an intentional and pedagogical framework that is well-suited to the history, character, structure, and philosophy of the institution. UC's significance in WIL is well-documented (Reilly, 2006) and substantial in both its breadth and depth. At UC today, WIL courses are facilitated in every undergraduate college at the university and occur in some of the university's graduate and professional programs. During the 2018–2019 academic year, close to 40,000 experience-based course enrollments were recorded, accounting for a 28 percent increase over five years.

UC recognizes that WIL is especially effective in meeting current challenges facing higher education such as (1) the perception of a declining value proposition of a college degree; (2) the need to modernize curriculum and instruction to better meet the demands of the world, and (3) the need to ensure students are not just prepared for a first discipline-specific job, but rather to adapt for a lifetime vocational journey.

UC also understands that when approached in a scholarly fashion, WIL is a complex learning framework rooted in constructivism where the learner learns through experiences and through critical reflection on those experiences. UC defines quality WIL as being:

¹ Corresponding author: Erik Alanson, alansoek@ucmail.uc.edu.

- Intentional (experiences are structured with trained educators as facilitators)
- Learner-centered and holistic (concerned with learning and growth of the student as a whole)
- Collaborative with the learner's community or communities (contextualized to include real-world complexities, situated within real world contexts)
- Dependent on the inclusion of rigorous reflexive, reflexive, and reflective pedagogic strategies

UC's historic portfolio has demonstrated that WIL positively impacts students, the educational institution, partners, employers, and community at large (Reilly, 2006). Leaders at UC created and sustained an environment in WIL that can expand, be assessed, and be continually improved via data-based decision making. Leaders have understood and come to embrace a full-throated support for WIL from the top down (structural support, including recognition and reward for student, faculty, and staff) as well as from the bottom up (faculty-driven, student-centered, and community-engaged). Additionally, UC leaders have championed the concept that WIL participation must include enthusiastic commitment from stakeholders from both inside and outside of the university.

Work-Integrated Learning Umbrella

There are many different forms of WIL at UC. In addition to the more traditional models of WIL (co-op, internships, and service-learning), the university supports several others including performances and juried exhibitions, clinicals, undergraduate research, practicums, UC Forward, honors, international work-integrated learning, student teaching and field experience, and peer education. Figure 1 provides a breakdown of these WIL models and shares participation percentages relevant to enrollment.

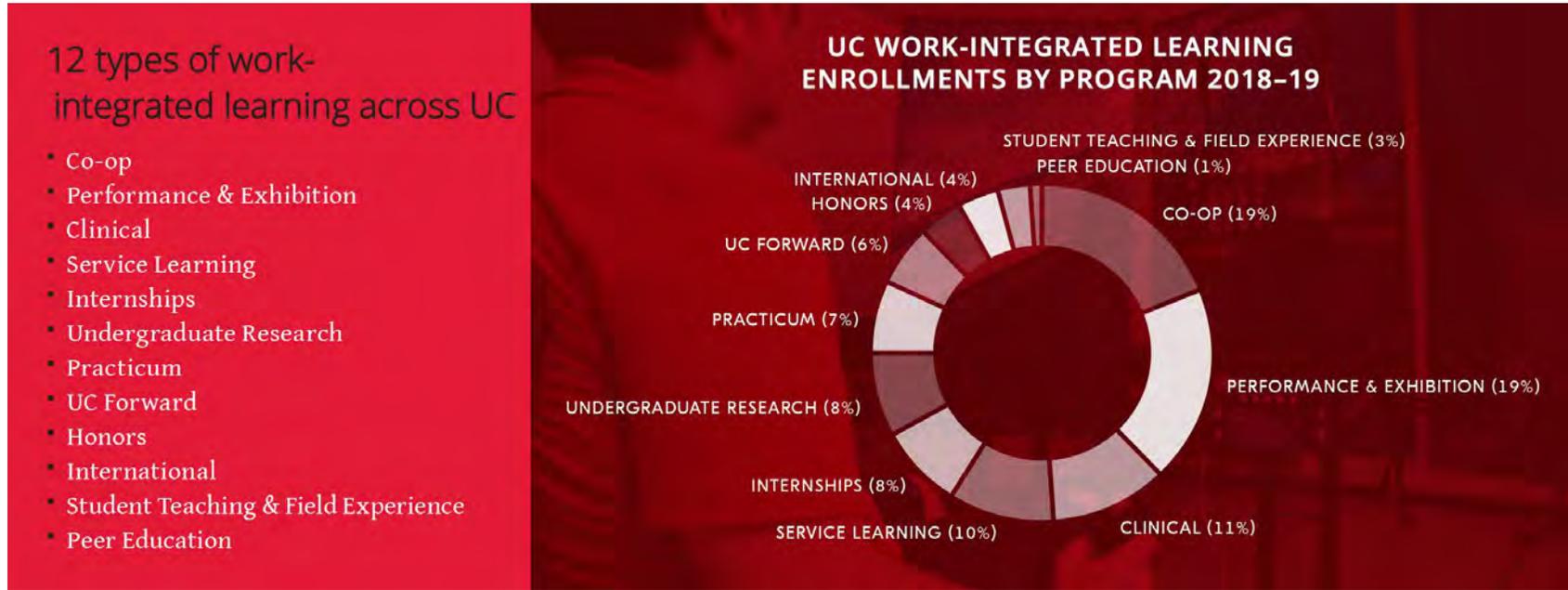
The Cornerstone of Work-Integrated Learning: Cooperative Education

Volumes have been written about the original founding of the cooperative education (co-op) program at the University of Cincinnati. Co-op is articulated as one of the university's signature strengths. It is embedded in the DNA of the institutional identity and constitutes a significant consideration for all major institutional decisions. Co-op was invented at the University of Cincinnati in 1906 (Cates & Cedercreutz, 2010). Now, over 100 years and 43 countries later, generations of students worldwide have followed. Cooperative education is an educational model in which students alternate traditional academic semesters with semesters spent working full-time in their chosen field. Co-op positions are paid and are offered by a variety of organizations all over the country and the world. In designated co-op majors, students complete between three and five co-op semesters prior to graduation (Cates & Cedercreutz, 2008). During each co-op semester, students complete an online course intended to help them focus on their academic development, professional development and synthesize learning through an articulated learning reflective framework (Ash & Clayton, 2004). Co-op employers are also asked to evaluate student development and performance on a semesterly basis.

EMERGING MODELS OF WORK-INTEGRATED LEARNING

While cooperative education, internships, and service learning are long standing traditional models of WIL at UC, several innovative models have emerged within recent years to meet the demands of changing student populations, shifting higher education goals and modified industrial expectations. As a forward-thinking institution, these developments were the foundation for the successful transitions that occurred after the ramifications of the pandemic started to unfold.

FIGURE 1: Models of Work-Integrated Learning at the University of Cincinnati



Note. Adapted from the *Experience-based Learning and Career Education at the University of Cincinnati Annual Report, 2019*. Copyright 2019 by University of Cincinnati. 2019. Reprinted with permission.

Parallel Co-op

Mason (1981) lists parallel cooperative education as one of the four primary types of cooperative education in existence today. Parallel co-op typically requires participating students maintain a minimum of half-time enrollment in combination with half-time work experience. Although the alternating model has maintained predominance since cooperative education's inception, this traditional model is not without its challenges. Alternating co-op models can strain teaching resources and require year-round course offerings (Knowles, 1971).

Some early literature suggests that parallel cooperative education is only suitable for underclass students and can hamper upper-class students' performance as pressures of long-term academic projects and difficult coursework mounts (Gould, 1987). Other literature claims that parallel co-op models are altogether inferior as they may not provide the same breadth and depth as the traditional model (Grubb & Villeneuve, 1995). These perceptions are often based on practitioner impression without significant statistical findings posited. Despite some opposing perceptions, many of the long-standing cooperative education institutions are now offering parallel co-op programs (Purdue University, n.d.; The Ohio State University, 2018). While more research is needed to determine the difference in student and institutional benefits between alternating and parallel cooperative education models, research suggests that differences in student perception of perceived benefits are minimal (Fenster & Parks, 2008).

Transdisciplinary Curricular Offerings

Transdisciplinary education takes learning beyond the university by recognizing that academic knowledge alone is not sufficient in solving tough societal problems. This knowledge must be combined with practical knowledge of invested stakeholders and community members (Remington-Doucette et al., 2013). According to Nicolescu (1997):

As the prefix 'trans' indicates, *transdisciplinary* concerns that which is at once *between* the disciplines, *across* the different disciplines, and *beyond* all discipline. Its goal is *the understanding of the present world* of which one of the imperatives is the unity of knowledge. (p. 3).

This outlook on education is reflected in innovative work-integrated learning opportunities where students work beyond disciplines with community and other institutional partners to solve real-world problems (Beck, 2005; Nandan & Scott, 2013).

International Work-Integrated Learning

Since 2001, the number of post-secondary U.S. students studying abroad has more than doubled (Open Doors, 2019). This significant growth emphasizes student demand for international experiences. When combined with rigorous academic programming, these study abroad experiences can provide powerful boosts to global citizenship attributes (Tarrant et al., 2014). International WIL programs serve as one mechanism to provide this enriching international programming while delivering on the general benefits of work-integrated learning experiences (McRae et al., 2016).

Research indicates that companies with multinational ties often view candidates with international work experiences as more desirable (Archer & Davison, 2008). Employers also value skills that come with global competence, such as observational skills and the ability to adapt to change, with increasing favorability toward longer study abroad programs (Trooboff et al., 2007). While study abroad

programs can promote greater growth in knowledge of unfamiliar cultures, work abroad programs have shown greater effect on a student's ability to plan for and thrive in unfamiliar cultural settings (McRae et al., 2016). At UC, international WIL programs range in scope and size from long-term, full-time cooperative education experiences of six months or more to weeklong virtual projects with international employer-partners.

RE-ENVISIONING WORK-INTEGRATED LEARNING TO RESPOND TO COVID-19

The COVID-19 pandemic presented unprecedented challenges for higher education and specifically the University of Cincinnati. The mandatory co-op program experienced the largest hiring freeze initiated by industrial partners in program history. Students experienced high levels of rescinded offers of employment and some companies closed their doors entirely. As a result of this extraordinary situation, UC recognized the need to pivot WIL efforts in order to ensure the continuation of experiential learning during a time of hardship.

UC launched one of its largest campaigns in its 200-year history focused on facilitating student engagement in new forms of WIL. Though some students were able to obtain a traditional WIL experience, hundreds more were left with few options. Through extensive efforts, UC created multiple options to give students enrolled in mandatory co-op programs the opportunity to have a one-time educational alternative to traditional, paid co-op positions. The preliminary Experiential Explorations Program was born out of the necessity to broaden WIL options in response to diminished co-op hiring during the Great Recession. Further, the Experiential Explorations Program was designed to diversify applied learning experiences beyond students' traditional industrial scope. Students were able to choose from a suite of nine options: Study abroad, service learning, research, career-related travel, international experience, creative practice, entrepreneurship, leadership, or open source development. Explanations of the Experiential Explorations Program suite of offerings are included in Table 1.

COVID-19 Experiential Explorations Program

Expanding on the foundation of UC's established Experiential Explorations Program, the COVID-19 Experiential Explorations Program was initiated to provide numerous options for students to engage in virtual, project-based and micro experiences. This also served as an opportunity to learn what was missing from UC's pre-existing WIL offerings. As a pilot, it was also intended to serve as an opportunity to gather data from students about overlooked offerings that were relevant to their professional pathways. To support these initiatives UC launched one of the nation's first remote work research and learning centers. The center's mission aims to ensure employers and students are well prepared for the new world of work by learning best practices of virtual work modalities. Virtual employment opportunities are facilitated by university personnel to provide students with entry-level remote experiences.

The center pioneers the development of strategy, policy and evaluation of the use of cutting-edge hardware, software, and network security technologies to leverage virtual work opportunities for students throughout every industry. Both students and industry/community partners utilize the center to learn how to leverage these technologies to further advance their missions through a simulated learning environment.

TABLE 1: University of Cincinnati experiential explorations program definitions.

Experiential Explorations Program Type	Definition of Experience
Study Abroad	Study abroad experience.
Service Learning	Work is performed for a not-for-profit organization.
Research Experience	Research experience must be a minimum of 450 hours/ a semester and must be verified by a supervisor. Work is preferably for a professor or research institute/program. Experiences are discipline-related.
Career-Related Travel Semester	Travel must be related to the student's discipline or career goals.
International Opportunity	An international experience consisting of paid or unpaid work experience which may or may not be combined with academic coursework.
Creative Practice	Training under the guidance of a practicing professional in a related field. Students must identify the specific skill(s), craft(s), technique(s), that they will be studying and working to develop through their experience. Students must identify and propose a final deliverable that adequately demonstrates their increased proficiency with the skill(s), craft(s), techniques(s), that they have developed through the experience.
Entrepreneurship	Experience is structured and formalized and outlines a launch plan that includes (a) specific startup activities and (b) goals with clear milestones/timeframes for business development. Students must identify and propose a final deliverable that adequately demonstrates their business development through the experience; this deliverable must be approved by a faculty member in the Division of Experience-based Learning and Career Education and a faculty/staff member from the Center for Entrepreneurship and Commercialization.
Leadership	Students are in a position of leadership when they are either training, supervising, facilitating, and/or developing content, managing a program/event, or making organizational change.
Open Source	Work is preferably for organizations that provide free community open source access. Possible opportunities for open source community contributions include, but are not limited to, Google, Mozilla, Microsoft Azure, Chromium, Apache, Drupal, Linux/Unix and distributed versions, Joomla, Moodle, and Python.

UC also launched the Digital Skills Lab in parallel with the new Remote Work Center. This lab focuses on preparing students to obtain industry recognized credentials (IRCs) by validating technical skills and expertise driven by relevant industrial standards. This lab has curated numerous trainings accessed in an open source capacity by the entire UC community.

Through combining the Remote Work Center, Digital Skills Lab, and historical Experiential Explorations Program offerings, the expanded COVID-19 Experiential Explorations Program options provided students with learning and development opportunities free of charge and allowed for maximum flexibility during unprecedented times. The following highlights COVID-19 Experiential Explorations Program offerings aimed at re-envisioning the institution's portfolio of WIL.

Virtual Apprenticeships

UC led virtual registered apprenticeship programs (RAPs) certified by the U.S. Department of Labor. Students in computing and informatics disciplines were provided with a baseline 250-hour virtual employment experience that involved project teams, industrial mentors, and subject-matter experts (SMEs). Further, students were assigned work roles by SMEs and provided iterative feedback on their development of knowledge, skills, and abilities (KSAs) mapped to industrial competency standards such as the NICE Cybersecurity Workforce Framework (Newhouse et al., 2017).

Remote Work Opportunities

In rapid response to COVID-19 and its impact on employers, UC leveraged its Remote Work Center Faculty to support employers in moving their face-to-face work experiences for students to a remote setting. These trainings included aspects of digital feedback, online mentorship, and communication plans to ensure both the students and employers were successful in their new remote setting. Training in technology platforms such as *Microsoft Teams* and *WebEx* provided employers the ability to adapt quickly. Through this support, employers from every industry sector were able to continue supporting students in a new remote work environment.

Serve-IT (Service-Learning Co-op)

Boasting one of the largest service-learning programs in the world with more than 6,000 students per year, UC developed Serve-IT Solutions. This innovative program provided not-for-profit organizations (NPOs) the option to have computing and informatics-related projects, such as website development or database management, completed in a cost-effective and mutually impactful way. UC sought to broaden its impact in the community, connecting NPOs with trained student talent. After students completed courses to prepare for computing- and informatics-related apprenticeships, NPOs were given the chance to hire students as apprentices and receive up to \$1,000 per student as wage subsidy.

Service-Learning + Digital Innovation

Soon after the announcement of the closing of campus, UC's Service-Learning Office partnered with the Office of Digital Innovation to launch a new virtual community. *S-L + Digital Innovation | COVID-19 Solutions* was launched in March of 2020 and has met bi-weekly since. The purpose of the virtual community was to engage an eclectic group of campus-community stakeholders and, via the philosophy of collective impact (Kania & Kramer, 2011), leverage skills, passions, ideas, and energies around supporting Cincinnati's NPO sector. Early in the process, the virtual community surveyed over 700 of UC's NPO partners and learned about specific needs facing those stakeholders served by partners. In response, the virtual community created five *COVID-19 Thematic Bundles*, which are each being addressed by a task force of faculty, staff, and community stakeholders. From the work of these task forces, several students have sought paid placements in the NPO sector.

Upskilling

UC developed a robust menu of virtual upskilling experiences that complemented students' academic curricula. This approach presented the chance for students to obtain new industrial skills (i.e. upskill) making them more qualified for future employment. Curated resources from the Digital Skills Lab provided students the use of online courses, boot camps and certification programs culminating in the earning of IRCs. Options were provided in critical fields like data science, cybersecurity, information technology, creative design, and research. Well-known providers such as Microsoft, Adobe and LinkedIn also offered online training programs. Students were tasked with identifying and proposing final deliverables that adequately demonstrated their increased proficiency through their upskill training. Students were strongly encouraged to complete at least one IRC examination as a final deliverable. Students that sat for examinations were given financial assistance to offset exam costs.

Project-Based Work Opportunities / Micro Co-op

UC developed a project-based work and micro-co-op model to address the need for short-term WIL experiences. Students worked with industrial partners to create short-term project deliverables while receiving appropriate compensation. These models opened doors for cost-effective and rich learning, much of which could be conducted in a remote capacity. Several resources such as the Parker Dewey project-based work platform (a micro-internship sourcing platform that connects workers with short-term paid projects for businesses) were available to UC students enabling them to source projects from industrial partners.

UC Forward Co-LABs

Through UC Forward Faculty Collaboratives (Co-LABs), students had the opportunity to work in transdisciplinary teams with other students, industry experts and outside collaborators in faculty-led projects addressing the impact of COVID-19. Students contributed their various skills and experiences through this transdisciplinary engagement opportunity. UC faculty posit that future workers will need transdisciplinary expertise in areas such as informatics, cyber-security, health and wellness, sustainability, Internet of Things (IoT), humanities, and digital communication (F. Russell, personal communication, April 3, 2020). These disciplines are projected to be at the forefront of the future of work over the next decade. The Co-LABs provided opportunities for research on how multidimensional project teams interacted and how remote work impacts team development.

Student Self-Authored Experiences

Student self-created experiences are one of the most impactful learning opportunities derived from COVID-19. Students were given the responsibility to take ownership of their learning by identifying WIL opportunities that aligned with their professional aspirations. Further, students were encouraged to obtain their own industrial mentors that could provide them with regular feedback and assessments of their learning during the pandemic.

PLACEMENT STATISTICS IN MANDATORY CO-OP PROGRAMS

Tables 2, 3, and 4 reflect WIL placement data for mandatory co-op programs during the summer 2020 academic term. These data illustrate pre-pandemic WIL placement percentages as well as WIL placement percentages for summer 2020 during the pandemic. The tables also reflect COVID-19 Experiential Explorations Program participation during the summer 2020 academic term. As noted,

550 engineering students participated in a COVID-19 Experiential Explorations Program as a result of limited traditional WIL opportunities during this time. In design majors, 271 students participated in the COVID-19 Experiential Explorations Program and 137 students participated in the COVID-19 Experiential Explorations Program representing the information technology discipline.

TABLE 2: Summer 2020 Experiential Explorations Program Placements in Engineering

Major	Unplaced	WIL Placement	COVID-19 Experiential Explorations Program Placement	% Rate	Total
Architectural Eng.	1	30	33	98%	64
Aerospace Eng.	11	81	42	92%	134
Biomedical Eng.	3	71	67	98%	141
Civil Eng.	0	114	43	100%	157
Chemical Eng.	36	119	58	83%	213
Construction	0	65	23	100%	88
Computer Eng.	4	97	46	97%	147
Computer Science	0	112	49	100%	161
Electrical Eng.	20	98	40	87%	158
Electrical Eng. Tech	2	13	8	91%	23
Environmental Eng.	5	29	21	91%	55
Mechanical Eng.	48	157	81	83%	286
Mechanical Eng. Tech	31	46	39	73%	116
Summer 2020 Total	161	1032	550	91%	1743
Summer 2019 Compare	44	1608	N/A	97%	1652

TABLE 3: Summer 2020 Experiential Explorations Program Placements in Design

Major	Unplaced	WIL Placement	COVID-19 Experiential Explorations Program Placement	% Rate	Total
Architecture	4	56	33	97%	128
Community Planning	7	10	9	73%	26
Com. Design	8	32	34	89%	74
Design	0	11	3	100%	14
Fashion	1	9	46	98%	56
Fine Arts	3	11	47	95%	61
Industrial Design	8	41	30	90%	79
Interior Design	1	7	25	97%	33
Landscape Arch.	0	3	0	100%	3
Urban Planning	4	2	9	73%	15
Summer 2020 Total	36	182	271	93%	489

TABLE 4: Summer 2020 Experiential Explorations Program Placements in IT

Major	Unplaced	WIL Placement	COVID-19 Experiential Explorations Program Placement	% Rate	Total
Information Technology	2	195	137	99%	334
Summer 2019 Compare	7	254	N/A	97%	261

MAINTAINING CURRICULAR INTEGRITY

UC prides itself on having innovative faculty that creatively find ways to solve 21st century problems. However, there was no innovation playbook that could aid faculty in their curricular delivery during a global pandemic. UC faculty were dedicated to the academic integrity of courses and co-op offerings. Even during a pandemic when student experiences looked different from the traditional co-op model, faculty ensured that experiences maintained quality. Maintaining curricular integrity was one of the key factors that allowed for the COVID-19 Experiential Explorations Program option to be successful.

Through the development of the COVID-19 Experiential Explorations Program faculty ensured this alternative option provided a professional development opportunity for students that was high quality, but that also attempted to mirror the growth experience of a traditional co-op. The COVID-19 Experiential Explorations Program provided students with the opportunity to grow professionally through a variety of work-integrated learning options. Experiences enhanced student knowledge of their chosen field and provided an opportunity to expand their knowledge with skills that contribute to professional marketability. The opportunities available to students allowed for unique work-integrated learning and professional development activities that embraced flexibility, diversity, and creativity.

A wide variety of experiences were made available to students through the COVID-19 Experiential Explorations Program. Faculty used their own discretion and creativity to assist students in developing meaningful opportunities and objectives that fit the unique needs of students and their desired industry. Student major pathways provided the foundation for which students crafted their learning experience. Engineering students took the opportunity to upskill themselves in areas such as programming languages, project management, and cybersecurity. Students in design majors crafted experiences that allowed more creativity, while also providing the ability to upskill themselves in technology such as Adobe Suite and web design. The opportunities available to students were vast, with the intent that the flexibility and diversity of offerings would ensure the learning was a high-quality experience for every student who participated.

The impacts of the pandemic and the lasting implications for the economy will continue to impact students for semesters to come. Therefore, it is anticipated that the COVID-19 Experiential Explorations Program will be available to students in subsequent semesters, to ensure that all students are afforded the option of high-quality WIL. Further, iterative adjustments will be made to the program to ensure the breadth of experiences appropriately coincide with student needs over time.

LESSONS LEARNED ABOUT FLEXIBLE OFFERINGS

UC espouses agility and critical thinking in an effort to continually re-evaluate the status quo and the educational experience of students. The COVID-19 pandemic forced the division to lean into its values to be more flexible than ever before. Throughout the rapid transition period to remote work and distance-learning caused by COVID-19, the organization questioned why thresholds were set (e.g., number of contact hours for WIL experiences) and identified the paramount pillars of work-integrated learning needed to maintain quality. Rather than making sweeping generalizations and developing wide-arching protocols that would impact all students, faculty were empowered to provide input about the unique needs of student populations to ensure industry-appropriate solutions for specific student populations. This allowed the division to tailor opportunities that aligned with students' professional goals and provide student-focused solutions at scale.

Through this pandemic, the Division of Experience-based Learning and Career Education learned three valuable lessons.

1. Agile, forward thinking organizations can more easily adapt during pandemics, economic downturns or other unforeseen circumstances.
2. Mentorship from faculty via assigned caseloads provides necessary security and support for students as they create professional plans.
3. Students can achieve high quality work-integrated learning outcomes through a variety of flexible, customized pathways tailored to individual professional needs.

Agile Organizations

The pandemic pushed the Division of Experience-based Learning and Career Education to adopt an agile organizational framework. This flexibility opened doors for underserved student populations to engage in WIL and it afforded the division the opportunity to re-evaluate its core mission of enabling students to be successful in a wide variety of work settings.

UC was validated in efforts to be forward-thinking and deliver flexible models of WIL. Some COVID-19 Experiential Explorations Program offerings were curricular considerations prior to the pandemic. As such, UC was able to quickly leverage and scale these models to serve a broad variety of students. It was extremely helpful that the institution was prepared to make quick transitions as a result of years of intentional planning and thinking about how to prepare students for the future of work.

Faculty Mentorship

Student safety was a paramount goal, followed by ensuring that students had high-quality learning experiences connected to their professional pathways. Helping students make decisions that were in the best interest of their personal health and those around them was a primary hurdle. Beyond the initial health concerns connected to hotspots and outbreaks, UC considered content students needed to learn or experience to continue developing as professionals. Faculty in the Division of Experience-based Learning and Career Education provided support for students within their caseloads by listening and responding with compassion. Having never lived through a pandemic, both faculty and students were finding their own way as implications of the pandemic unfolded each day. The pre-existing relationships between faculty and students in mandatory co-op programs created an open, welcome space for students to express their concerns and talk one-on-one about their unique situations to evaluate appropriate solutions. Faculty met with students via *Web-Ex*, *Zoom* and *Microsoft Teams*. Faculty held regular virtual office hours and created flexible meeting times in the evening. Faculty also provided a scaffolding of support via online modules and resource folders for students through the university's learning management system.

For students not participating in a mandatory co-op program, it was far more challenging to disseminate information through college department heads and/or college listservs. The need for a centralized resource and/or connection points beyond the classroom became evident through the pandemic. While the number of students in non-mandatory programs cannot be assigned to a caseload for a variety of reasons (e.g., too large for faculty ratios, alternative forms of work-integrated learning required, programmatic requirements that mandate a nuanced type of work-integrated learning), the need for centralized resources and information sharing became apparent through this pandemic. This support will be advanced over the forthcoming academic year.

Flexible Pathways

Students were provided bundled pathways for constructing upcoming WIL experiences. Faculty members curated one-page overviews organized by academic discipline. This made it easier for students to evaluate options aligned with their professional pathway.

Options within engineering and technical majors included a vast array of upskilling and project-based work experiences designed to facilitate the attainment of industry-recognized credentials. For instance, students in computing majors could engage in a cybersecurity virtual apprenticeship, IBM Skills Academy course, and earn a cybersecurity badge from LinkedIn Learning. Further, by allowing students to self-author credentialed experiences and dictate particular skills they wanted to develop, the program became a malleable structure that could adapt to all student needs.

In addition to providing unique WIL experiences to mandatory co-op majors, UC also developed opportunities for liberal arts majors. Liberal arts majors within the College of Arts & Sciences often have a challenging time relating their transferable skills to professional employment. One solution for these students was to participate in digital upskilling, some of which result in industry-recognized credentials.

Earning an industry-recognized credential isn't the end of something – for many students, it's the beginning. It's the first step in achieving career aspirations. It's an opportunity to earn a good wage while pursuing additional education. Industry credentials aren't obtained instead of going to college – often they're part of a larger plan to help pay for college. Credentials are evidence of work ethic, drive and persistence that can be used to catapult students into the future. It's an achievement to be celebrated and will continue to pay dividends back to the students throughout their careers (Passias, 2016).

Building upon embedded course assignments which required students to participate in a 4-hour digital skill training, faculty identified robust pathways for liberal arts students to engage in meaningful, semester-long experiences that would help them develop unique skills to accompany their breadth of learning. The Division of Experience-based Learning and Career Education identified 4 IBM certifications and a Salesforce certification as pathways that provided necessary skills to complement many liberal arts professional pathways. These certifications targeted the enhancement of student marketability for future employment.

Students from all disciplines were empowered to author their own experiences based on their professional goals and a skill gap assessment. Through guided conversations with faculty and suggested pathways mapped to essential industry competencies, UC afforded students the option to blend project-based work, micro-co-op, service learning, undergraduate research and digital upskilling into meaningful, robust experiences aligned with individual professional pathways. For students in non-mandatory co-op majors, this provided a new opportunity to participate in meaningful WIL they could fit between part-time jobs unrelated to their academic disciplines.

CONCLUSION

The COVID-19 pandemic presented unforeseen challenges that impacted the breadth of work-integrated learning in 2020, and it is likely these hardships will be felt for years to come. Traditional WIL opportunities for students became limited; industrial partners instituted hiring freezes, furloughed employees and rescinded student co-op offers making the ability for students to obtain WIL

experiences nearly impossible. In response to COVID-19, the University of Cincinnati leaned on its history of ingenuity to develop a robust portfolio of re-imagined WIL experiences through the COVID-19 Experiential Explorations Program framework. As WIL programs adapt to the changing landscape of employment, opportunities tied to upskilling, micro-co-ops, virtual experiences, service learning and research should be considered by WIL practitioners. By re-envisioning the scope of experiential learning, WIL programs can survive, and even thrive during even the most arduous and unprecedented circumstances.

The specific outcomes and impact of the COVID-19 Experiential Explorations Program will be evaluated after UC faculty and administrators obtain formalized feedback from students and industrial partners. UC will examine the benefits and challenges of the Experiential Explorations Program options to strengthen flexible offerings over time. It is anticipated that significant adjustments will be made as the institution redefines WIL to most appropriately educate students for the future of work.

INSTITUTIONAL REVIEW BOARD APPROVAL

The authors of this case study obtained IRB approval and received a non-human subjects determination in advance of this study.

REFERENCES

- Archer, W., & Davison, J. (2008). Graduate employability: What do employers think and want? *Council for Industry and Higher Education*. http://cced-complete.com/documentation/graduate_employability_eng.pdf
- Ash, S. L., & Clayton, P. (2004). The articulated learning: An approach to guided reflection and assessment. *Innovative Higher Education*, 29(2), 137–154.
- Beck, E. (2005). The UCSD student-run free clinic project: Transdisciplinary health professional education. *Journal of Health Care for the Poor and Underserved*, 16(2), 207–219. <https://doi.org/10.1353/hpu.2005.0026>
- Cates, C., & Cedercreutz, K. (2008). *Leveraging cooperative education to guide curricular innovation: The development of a corporate feedback system for continuous improvement*. Center for Cooperative Education Research and Innovation.
- Cates, C., & Cedercreutz, K. (2010). Cooperative education at the University of Cincinnati: A strategic asset in evolution. *Association of American Colleges and Universities*, 12(4).
- Fenster, M. J., & Parks, D. K. (2008). Does alternating and parallel programmatic structure make a difference in student reported learning outcomes? *Journal of Cooperative Education and Internships*, 42(1), 33–40.
- Gould, P. (1987). Alternating cooperative education. In D. Hunt (Ed.), *50 views of cooperative education*. University of Detroit.
- Grubb, W. N., & Villeneuve, J. C. (1995). *Co-operative education in Cincinnati: Implications for school-to-work programs in the US*. National Center for Research in Vocational Education. https://pdfs.semanticscholar.org/16d6/493f217647607d6fb914829d703b42c51db2.pdf?_ga=2.250760582.186750123.1599659556-308328097.1599659556
- Kania, J., & Kramer, M. (2011). Collective impact. *Stanford Social Innovation Review*, 9(1), 36–41.
- Knowles, A. S. (1971). *Handbook of Cooperative Education*. Jossey-Bass.
- Mason, R. E. (1981). *Cooperative occupational education and work experience in the curriculum*. (3rd ed.). Interstate Printers & Publishers.
- McRae, N., Ramji, K., Lu, L., & Lesperance, M. (2016). Developing global-ready graduates: The CANEU-COOP experience. *Asia-Pacific Journal of Cooperative Education*, 17(4), 377–386.
- Nandan, M., & Scott, P. A. (2013). Social entrepreneurship and social work: The need for a transdisciplinary educational model. *Administration in Social Work*, 37(3), 257–271. <https://doi.org/10.1080/03643107.2012.684428>
- Newhouse, W., Keith, S., Scribner, B., & Witte, B. (2017). The national initiative for cybersecurity education (NICE) cybersecurity workforce framework. *NIST Special Publication*, 800-181.
- Niculescu, B. (1997). *The transdisciplinary evolution of the university condition for sustainable development*. Springer. https://doi.org/10.1007/978-3-319-93743-4_6
- Open Doors. (2019). *Report on international educational exchange*. <https://www.iie.org/opendoors/>
- Passias, E. (2016, September). *Credentials count: Why industry credentials are important for our students, schools and communities*. Ohio Department of Education. <https://education.ohio.gov/Media/Extra-Credit-Blog/September-2016/Credentials-Count-Why-Industry-Credentials-are-Imp>
- Purdue University. (n.d.). *Parallel co-op program*. https://opp.purdue.edu/Co-Op Pages/Parallel_Co-Op.html

- Remington-Doucette, S. M., Connell, K. Y. H., Armstrong, C. M., & Musgrove, S. L. (2013). Assessing sustainability education in a transdisciplinary undergraduate course focused on real-world problem solving: A case for disciplinary grounding. *International Journal of Sustainability in Higher Education*, 14(4), 404–433. <https://doi.org/10.1108/IJSHE-01-2012-0001>
- Reilly, M. B. (2006). *The ivory tower and the smokestack*. Emmis Books.
- Tarrant, M. A., Rubin, D. L., & Stoner, L. (2014). The added value of study abroad: Fostering a global citizenry. *Journal of Studies in International Education*, 18(2), 141–161. <https://doi.org/10.1177/1028315313497589>
- The Ohio State University. (2018). *Caterpillar partners with Ohio State on remote co-op program*. <https://engineering.osu.edu/news/2018/02/caterpillar-partners-ohio-state-remote-co-op-program>
- Trooboff, S., Vande Berg, M., & Rayman, J. (2007). Employer attitudes toward study broad. *Frontiers: The Interdisciplinary Journal of Study Abroad*, 15(1), 17–34. <https://doi.org/10.36366/frontiers.v15i1.214>
- University of Cincinnati. (2019). *Experience-based learning and career education at the University of Cincinnati annual report*. <https://www.uc.edu/content/dam/refresh/experiencebasedlearning-62/docs/annual-report/ELCE-2019-Annual-Report.pdf>