

MAPPING THE TERRAIN: A SYNTHESIS OF RECENT RESEARCH AND FUTURE DIRECTIONS



Authors

JULIE PETERS, PH.D. & ROGER PIZARRO MILIAN, PH.D.

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INTRODUCTION

The past three years have brought unprecedented change to Canadian society. In March 2020 the pandemic forced rapid and wholesale change to the way services were delivered across a range of sectors – both public and private – pushing many systems to their breaking point. Canadian postsecondary institutions and their partners in the delivery of work-integrated learning (WIL) were not spared from this unexpected disruption. From quickly pivoting online to implementing dynamic public health measures (e.g., social distancing, vaccine mandates), the pandemic touched every organization in our system. The long-term effects of the pandemic are felt to this day as organizations continue to grapple with a workforce that is squeezed by the rising cost of living and wage stagnation, reluctant to return to the office, and struggling with the high levels of job dissatisfaction that fueled the much written about *Great Resignation* and pervasive “quiet” quitting.

Within this evolving context, WIL has become more important than ever to help Canadian employers and governments address the critical labour and skills shortages that have become a challenge across nearly every industry—from hospitality to natural resource extraction—and every province. Sizable federal and provincial financial investments along with extensive and growing employer participation in WIL delivery are a testament to the consensus around WIL being one of the few tried-and-tested policy strategies that can help the Canadian labour market overcome current and looming challenges to our competitiveness on the world stage. Further, continued advocacy from associations representing colleges, polytechnics, universities, and various industry groups for the expansion of WIL funding is evidence of a strong commitment to continuing to build a WIL ecosystem that is already an international leader.

Despite the above mentioned successes, it is important to acknowledge that the landscape of WIL in Canada has been radically altered since the start of the pandemic in ways that may not be well understood or documented. Through this report, we aim to provide an overview of notable and evolving trends in the field of Canadian WIL. This includes not only taking stock of WIL programming and participation across the country, but also identifying developments within our system. Far from being an uncritical celebration of WIL, our objective is to provide an earnest appraisal of what we currently know and what reliable data we lack to understand.



More specifically, in the pages that follow we review:

1. Contemporary definitions of what activities fall under the WIL umbrella.
2. Data sources capturing the quantity of WIL activity occurring across Canada.
3. Documented challenges to delivering WIL.
4. Proven challenges to accessing WIL.
5. The many benefits of WIL to various stakeholders.
6. Recent developments in WIL.





WHAT IS WIL?

Work-integrated learning (WIL) is defined by CEWIL Canada as “a form of curricular experiential education that formally integrates a student’s academic studies with quality experiences within a workplace or practice setting.” WIL experiences consist of a collaboration between an academic institution (e.g., college, university); an employer, industry, or community partner (e.g., host organization); and a student. It is important to remember that WIL arrangements can occur at both the course or program level and that they focus on the development of student learning objectives/outcomes related to employability, knowledge and skill mobility, and life-long learning.

Although there are other valid definitions of WIL circulating in Canadian PSE, there is growing convergence on this CEWIL Canada definition, and we have seen a long list of organizations come to adopt variants of it. This includes many colleges [1] and universities [2], as well as diverse industry bodies like [CPHR Alberta](#), [TECHNATION Canada](#), and [Tourism HR Canada](#). The CEWIL Canada definition is also increasingly adopted by research organizations such as the Higher Education Quality Council of Ontario (e.g., Chatoor, [2023](#); p. 9)

Nevertheless, there remains some degree of ambiguity about what WIL means, even among experts. This is partly a function of the recent explosion of activities designed to provide students with early exposure to applied learning opportunities. Today, the term WIL is used interchangeably or lumped together—both within the academic literature and policy discourse— with terms like “experiential learning,” “practice-based learning,” and “work-based learning,” along with labels for activities that practitioners perceive as falling under the umbrella of WIL, such as “co-operative education,” “clinical education,” or “internships” (Academica, 2016).

Variation in the labels, meaning, and form that WIL takes is augmented further if we take an international perspective. Our goal through this section is not to litigate the definitional differences between this ecosystem of terms, but to provide greater clarity on what CEWIL Canada and adjacent communities increasingly consider to be the essence of WIL.

[1] For examples, see [Loyalist College](#), [Medicine Hat College](#) or [Norquest College](#)

[2] For examples, see [University of Waterloo](#), [University of Saskatchewan](#), or [Kwantlen Polytechnic University](#)

Several types of activities fall within the umbrella of WIL, as defined by [CEWIL Canada](#):

1. Apprenticeships entail an agreement between a person (the apprentice) desiring to learn a skill and an employer that is willing to provide paid practical experience supervised by a certified journey person. The work carried out by an apprentice occurs within an environment that is conducive to developing the competencies required within a given occupation. Apprentices dedicate only roughly 20% of their time to receiving technical classroom training, and devote the rest of their time to acquiring on-the-job experience. In Canada, apprenticeships last between 2-5 years depending on the trade. Data reported to CEWIL Canada in 2022 suggest that students spend approximately 1,388 hours in apprenticeship, rendering them the longest form of WIL. [3]

2. Internships within the context of WIL consist of a supervised, structured work experience. They can vary greatly in length, but typically range from 12 to 16 months. Moreover, they can occur either during the middle of an academic program or after the completion of coursework, but prior to graduation. Internships can be unpaid or paid depending on the jurisdiction and the nature of the internship arrangement. Data reported to CEWIL Canada in 2022 suggest that students spend an average of 488 hours in internships.

3. Co-operative Education comes in two main types. Co-op *alternating* consists of alternating academic terms and paid work terms. Co-op *internships*, on the other hand, consist of several co-op work terms back-to-back. In both scenarios, work terms are structured to provide workplace experiences related to the student's academic program of study. Time spent in work terms must be at least 30% of the time spent in academic study for programs that are more than two years in length, or 25% of the time for programs two years and shorter in length. Data reported to CEWIL Canada in 2022 suggest that students spend an average of 464 hours per co-op work-term.

4. Service Learning integrates community service at various types of organizations (e.g., non-profits) with classroom instruction and critical reflection to simultaneously enrich students' learning experiences and strengthen communities. Students typically work in partnership with a community-based organization to apply their disciplinary knowledge to a challenge identified by the community. Data reported to CEWIL Canada in 2022 suggest that students spend an average of 54 hours in community service learning, rendering it the shortest form of WIL.

[3] These data are reported by institutions on a voluntary basis, and as such, may not be statistically representative.

5. Mandatory Professional Practicum/Clinical Placements involve work experience acquired under the supervision of an experienced licensed/registered professional in any discipline that requires practice-based work experience for professional licensure or certification (e.g., nursing, pharmacy). Student participants are usually unpaid and, as the work is done in a supervised setting, normally do not have their own caseload.

6. Field Placements provide students with a part-time/short-term intensive hands-on practical experience in a setting relevant to their program of study. Field placements may not require supervision from a registered or licensed professional and the completed work hours are not required for professional certification. Field placements account for work-integrated educational experiences not encompassed by other forms, such as co-op, practicum, and internship. Data reported to CEWIL Canada in 2022 suggest that students spend an average of 228 hours in field placements.

7. Community and Industry Research & Projects: Through this type of WIL experience students are engaged in research that occurs primarily in workplaces, including consulting projects, design projects, and community-based research projects. Data reported to CEWIL Canada in 2022 suggest that students spend an average of 114 hours in community/industry projects.

8. Entrepreneurship: Allows a student to leverage resources, space, mentorship, and/or funding to engage in the early-stage development of business start-ups and/or to advance external ideas that address real-world needs for academic credit. Data reported to CEWIL Canada in 2022 suggest that students spend an average of 82 hours in entrepreneurship WIL programs.

9. Work Experience: Consists of one or two work terms (typically full-time) “interspersed” into an academic program. These terms are completed in a setting that is related to the student’s program of study and/or career goals. Not all institutions have conventional co-op or internship programs, so work experience often helps to fill these gaps for students who are interested in WIL. A distinguishing feature of work experience as WIL is that it lacks prescriptive hour and time frame criteria, resulting in lower barriers for student and WIL partner participation.

While there is growing consensus in Canada that the above mentioned activities fall under the WIL umbrella, there are a series of other types of activities that are sometimes referred to as WIL that do not abide by CEWIL Canada's position. WIL requires the participation of—at the very least—an academic institution; an employer, industry, or community partner (e.g., host organization); and a student. Such conceptual ambiguity is particularly common within the international literature, particularly in nations (e.g., Australia) where the promotion of traditional forms of WIL faces greater challenges. [4] This does not mean that these activities are not worthwhile or effective tools for skills development and work preparation. Rather, it means that they are qualitatively distinct experiences from what has traditionally been referred to as WIL by practitioners in the Canadian system. Popular examples that are not perceived as falling within the WIL umbrella include (e.g., Zegwaard, Pretti, Rowe, and Ferns, [2023](#); Cooper, Orrell, and Bowden, [2010](#), p. 43-45):

1. **Hackathons** traditionally bring individuals together for short but “intensely focused” events (1-2 days) to try to solve particular technical problems, often within a competitive or team environment (e.g., [Indeed](#); [Statistics Canada](#)). These events are often useful in that they allow students to interact with industry partners and showcase their skills, but often do not include meaningful collaboration with academic partners.
2. **Summer jobs or part-time employment** opportunities bring students valuable income and work experience, but typically fall outside of the scope of WIL if they are not formally integrated with the curriculum delivered through academic programs.
3. **Field Trips** designed to immerse students within an authentic work-like environment primarily via the observation of practitioners, but which do not specifically engage students in learning through participation in work-focused activities, tend to fall outside of the WIL umbrella.
4. **Case Studies** delivered through academic courses which are designed to provide knowledge of certain industry sectors, but which do not directly and meaningfully engage organizations within those sectors, are not WIL.

Of course, there are some observers that see variations of the above mentioned methods as constituting “emerging” forms of WIL (e.g., Jackson & Meek, [2021](#); Kay et al., [2019](#)). Nevertheless, making clear distinctions between what falls under the scope of WIL—maintaining a focus on those activities that meaningfully engage academic institutions, an employer, industry, or community partner (e.g., host organization), and students—is beneficial in restricting our focus through this report. There are also likely benefits to conceptual clarity around WIL when it comes to advocacy efforts and the organization of WIL delivery within institutions.

[4] We thank an anonymous reviewer for this observation.





PARTICIPATION IN WIL

It is unclear how many students participate in WIL in Canada. Previous estimates, based on a review of available survey data, suggest that roughly 50% of university students and 65-70% of college/polytechnic students participate in WIL (Academica, 2016). However, much has changed since the initial production of these estimates, rendering it possible that WIL participation has fluctuated in either direction. It is worth noting in advance that, in the absence of a perfect data source, developing a sense of how much WIL is occurring in Canada requires consulting and collating information from an array of imperfect data sources. The latter are subject to important limitations and forms of bias that we draw attention to throughout this section. Towards the end of the section, we advise on prospective strategies to improve our ability to track WIL participation across Canada.

The existing literature and data tell us more about co-operative participation rates than any other form of WIL. One of the highest-quality data sources that allows us to produce both national and province-level estimates for co-op participation is the National Graduates Survey (NGS). If we look at the public use micro-data file (PUMF) for the most recent iteration of this survey – conducted in 2018 as a three-year follow-up of the 2015 graduating class – we can see some notable differences in co-op participation based on credential level. Those in college certificate and diploma-level programs have the highest rate of participation in co-op at roughly 14.3%. Meanwhile, those in a Bachelor-level program participate at a slightly lower rate (12.7%). The lowest levels of participation (7.0%) are found among graduates from MA or PhD-level programs.

Research by Rodriguez et al. (2016) paints longer-term trends in co-op participation using the NGS master files which date back to the 1980s and contain more detailed information than PUMFs. Their estimates demonstrate the sizable jump in co-op participation in Canada over a roughly 25-year period. Among college graduates, co-op participation rates roughly tripled, whereas they more than doubled among bachelor’s graduates. Unfortunately, Rodriguez et al. (2016) do not report rates for individuals with graduate-level degrees (e.g., MA, PhD).

Table 1. Co-op participation Rates by Graduating Cohort

	1986	1990	1995	2000	2005	2009/10
College graduates	7.3%	11.5%	17.1%	24.1%	24.1%	21.9%
Bachelor’s graduates	4.9%	6.2%	7.1%	10.6%	11.9%	12.1%

Source: Rodriguez et al., 2016

Shifting gears to look at broader participation rates in WIL—as opposed to simply co-operative education—research done by Statistics Canada analysts (Galarneau et al., [2020](#)) with the 2018 NGS master files shows that self-reported [5] WIL participation rates vary considerably by credential level, with college graduates having the highest rates of WIL participation (61%), followed by bachelor’s (49%), master’s (37%), and doctoral (19%) graduates. Once segmented by province, it becomes evident that WIL participation rates vary widely across Canada. The highest rates of WIL for college graduates are observed in Nova Scotia (89.3%) and New Brunswick (88.9%), while the lowest rates are seen in British Columbia (52.3%). At the bachelor’s level, participation rates vary far less, with jurisdictions ranging from 44-60% participation. At the master’s level, Ontario (41%) has the highest participation rate, while Newfoundland and Labrador has the lowest (21.9%). Lastly, at the doctoral level, jurisdictions are all once again clustered with a tight 13-26% participation rate range.

Table 2. Rates of WIL Participation Among 2015 Graduates, by Credential and Province

Province of study	College	Bachelors	Masters	Doctoral
Newfoundland & Labrador	58.5	59.2	21.9	17.3
Prince Edward Island	74.4	55.4	36.0	N/A
Nova Scotia	89.3	49.4	39.6	20.3
New Brunswick	88.9	44.4	35.8	26.7
Quebec	66.6	49.6	33.8	26.0
Ontario	57.2	45.3	41.0	15.0
Manitoba	65.3	53.6	38.6	13.3
Saskatchewan	64.7	55.3	30.4	14.7
Alberta	59.0	54.2	31.3	14.3
British Columbia	52.3	49.6	37.7	18.9

Source: Galarneau et al., [2020](#)

Other data sources provide useful top-level figures that we can compare to trends observed through the NGS. For example, in 2021 the Canadian University Survey Consortium gathered information on a range of WIL activities that graduating students had engaged in (n=15,334) at participating institutions.

[5] In the [2018 National Graduates Survey](#) (NGS), students were asked: “Did you have any work placements as part of your program?” In turn, they were asked to include various forms of WIL, including co-op, internship, practicum, clinical placement, field experience, community service learning, and other work placements that were a part of their program. At the same time, they were asked to exclude work placements not part of their program (e.g., FSWEF), teaching and research assistantships, along with their thesis work. This contrast the [2013 NGS](#) that only asked students if their program was a “co-op program”.

Through it, we see that 14% of students reported having participated in co-op, with 13% participating in a practicum, 11% in service learning, 11% in a paid internship, and 6% in an unpaid internship. These figures are slightly lower in some areas from those reported through the 2018 CUSC survey of graduating students (n=14,760), where it was reported that 17% of students participated in co-op, 15% in practicum, 13% in service learning, 9% in paid internships, and 8% in unpaid internships. Corresponding figures are also provided in Table 3 for 2015 CUSC results. It is worth noting that participation in CUSC surveys varies across years due to its voluntary nature, and as such, changes in participation rates could be partly a function of which institutions participate in a given year.

Table 3. WIL Participation across years

	2015	2018	2021
Any experience	55%	56%	50%
Work experience	16%	18%	16%
Co-op	14%	17%	14%
Practicum [6]	16%	15%	13%
Service Learning	15%	13%	11%
Internship (paid)	7%	9%	11%
Internship (unpaid)	9%	8%	6%

Source: CUSC ([2015](#); [2018](#); [2021](#))

A third data source that allows us to gauge the prevalence of WIL participation is the National Study of Student Engagement ([NSSE](#)), which makes data for the 2017/2018 years available for all Canadian participants (n=47,440) through its website. Through that data we see that 48% of surveyed seniors at Canadian institutions were either currently doing or had completed an internship, co-op, field experience, student teaching, or clinical placement. In addition, a further 16% still planned to complete one prior to finishing their programs.

Since both Canadian and American postsecondary institutions participate in the NSSE, data gathered by NSSE provides a rare opportunity to compare WIL participation rates across these countries.

[6] The vast majority of Canadian PSE institutions that participate in the NSSE are universities, with few exceptions.

We see that a slightly higher percentage of American (52%) than Canadian (48%) graduating students were in the process of completing—or had already completed—a WIL experience. A larger percentage of American (24%) graduating students versus Canadian (16%) counterparts also expressed plans to complete a WIL experience in the future. It is difficult to evaluate the extent to which these figures accurately represent national differences in WIL participation rates, as the NSSE is also a voluntary survey. This means that the data it gathers is not likely to be statistically representative beyond the set of institutions that participate in the NSSE during a specific year. [7] Segmenting the available NSSE data by broad fields of study, we see that the highest levels of participation among Canadian graduating students are observed within the field of education (79%), followed by engineering (66%), and health (66%).[8] At the other end of the spectrum, fewer than a third of graduating arts and humanities (31%) students had participated in a WIL experience.

Finally, data reported by Employment and Social Development Canada (ESDC, [2021](#)) provides a window through which to observe WIL activity funded by the Student Work Placement Program (SWPP), which is likely correlated with broader patterns in WIL. Overall, this program created nearly 12,000 WIL opportunities from April 2017 to March 2020. The largest share of opportunities funded during 2019-2020 were within Ontario (48%), followed by British Columbia (20%), Quebec (15%), and Alberta (6%) (see p. 17). The rest of the country accounted for roughly 11% of WIL opportunities funded through SWP.

Beyond student-level data, information gathered by CEWIL Canada in 2022 from 53 PSE institutions (e.g., Drewery, 2023) provides a complimentary look at WIL activity across various dimensions of interest. Overall, CEWIL Canada collected information for 3,413 WIL programs offered across reporting institutions. Among them, we see that the largest share (40%) of WIL programming occurs within the realm of co-op. Other forms of WIL—including internships (15%) and field placements (14%)—are less frequently offered. Interestingly, these data show far more pronounced differences between co-op and other types of WIL which do not come across through the student-level data, such as that reported through CUSC. This is likely a function of counting WIL programs that are likely to be accessed by disparate numbers of students, as opposed to counting actual student experiences.

[7] As an additional national reference point, it is interesting to note that recent large-scale survey data for Australian bachelor's graduates (2020-2021) similarly shows WIL participation rates (56%) that hover around the same ballpark as Canadian and American figures (Jackson, Dean, & Eady, [2022](#)).

[8] Coincidentally, the top three fields in the NSSE with respects to WIL participation mirror those in the 2018 NGS for bachelors graduates (Galarneau et al., [2020](#)). It is also interesting to note that there is some correspondence here with WIL participation rates published within the Australian context, where health (57.7%) and education (56.5%) similarly exhibit high levels of WIL participation. At the same time, there are strong mismatches with the Australian data, with engineering (34.7%), for example, being further down the list (Universities Australia, [2019](#), p. 13).

Segmenting WIL programming by field of study, we see that the largest concentrations of WIL programming are found in the categories of architecture, engineering, and related technologies (17%); business, management, and public administration (15.5%); and health and related fields (14.2%). At the other extreme we see fields like agriculture, natural resources, and conservation (4.4%); education (5.6%); and the humanities (6.2%). These data do somewhat coincide with trends observed through the student-level data reported earlier, including the NGS and NSSE (in some respects). Notably, we see repeated evidence of high levels of activity in engineering and business and lower levels of activity in the humanities. Segmenting by credential level, we see that the largest share of WIL programming exists at the bachelor's level (45.4%), followed by WIL programming at the diploma (21.7%), master's (11.1%), and certificate (10%) levels. Again, here we see some correspondence with the 2018 NGS data, which tends to show the lowest levels of co-op activity at the graduate level.

On the employer side, we have little sense of how many unique employers provide WIL experiences to students across the country. Previous surveying of employers in Ontario (n=3,369) by Academica in 2011 found that roughly 36.5% of employers participated in WIL. Moreover, participation rates increased with firm size, from only 30.2% among firms with 2-9 employees to 52.2% for firms with 50+ employees (Sattler & Peters, [2012](#), p. 36). A 2021 survey of 95 large Canadian private-sector employers found that 94% partner with postsecondary institutions to participate in WIL, which was an increase from 86% in 2019 (BHER and BCC, [2022](#)). Given that this survey is skewed to larger employers, it likely overestimates the percentage of employers involved in providing WIL experiences. We are not aware of more recent data gathered at the provincial or national levels, that includes a representative sample of employers, and this represents an opportunity for future research in this space.

LIMITATIONS & OPPORTUNITIES FOR DATA DEVELOPMENT

Though the above mentioned sources provide insight into prospective trends, none of them provide optimal coverage on WIL participation in Canada. The 2018 NGS, though nationally representative, captures only information for graduates, excluding the roughly 20-30% of students that never graduate from postsecondary education. And, perhaps most importantly, it contains data for a graduating class (2015) from nearly a decade ago. Needless to say, much has changed since then in both the demand for and availability of WIL programming across Canada.

Other sources used above, including the CUSC, NSSE, and data reported to CEWIL Canada, offer “fresher” data on WIL participation, but they contain only imperfect coverage given that not all Canadian institutions participate in these reporting initiatives.

Data definitions and survey questions also vary, thus reducing direct comparability. As a result, when we find trends that are consistent across data sources, we have some assurance that they reflect “real” trends occurring within the sector. But, otherwise, we have to exercise a great deal of caution when interpreting observed trends, particularly when we witness conflicting patterns across data sources.

Given the state of available data sources, there is an opportunity for CEWIL Canada and other sector partners to engage in advocacy efforts to improve tracking and reporting of student participation in WIL. We foresee at least two possible solutions.

First, at the time of writing, the most reliable source we have for WIL participation – despite its multiple noted limitations – comes via Statistics Canada’s National Graduate Survey (NGS). At the same time, many provincial governments – including Alberta, British Columbia, Ontario, and Saskatchewan – make significant financial investments to field their own provincial graduate surveys, sometimes annually. Rather than fielding a patchwork of provincial-level and national surveys that capture data using contrasting instruments at different intervals in time, it would make sense for provincial and federal governments to pool resources and co-ordinate the execution of a more frequent National Graduates Survey, one that offers large enough sample sizes to produce reliable estimates at the institution level. A coordinated effort like this would result in a data source that offers more timely and national coverage of policy-relevant topics using a standardized survey instrument. The benefits of these data would far exceed the domain of WIL. The consolidation of graduate surveying would also result in reduced respondent fatigue, likely leading to better response rates for a single survey. It would also likely translate into cost savings for the involved parties.

Second, for over a decade, PSE institutions in Canada have been submitting administrative enrolment records to Statistics Canada as part of the Post-Secondary Student Information System (PSIS) initiative. These files provide basic coverage of student demographics, along with information on students’ programs of study and various other administrative fields. At the time of writing, Statistics Canada advises analysts against using the co-op indicator being reported by institutions outside of British Columbia, Manitoba, New Brunswick, Prince Edward Island, and the Territories. This is due to quality issues with the data reported in other provinces. “Fixing” data reporting issues across remaining jurisdictions could provide census-level coverage of co-op participation across the country. The PSIS theoretically provides an opportunity for institutions to report additional fields, including more detailed indicators denoting participation in other types of WIL activities. Achieving this would require close collaboration with, and buy-in from, Statistics Canada’s Centre for Education Statistics; provincial ministries responsible for PSE; and registrars at colleges, universities, and polytechnics.

A primary benefit of going the administrative route via PSIS reporting is that it provides coverage of the entire population as opposed to a sub-sample of respondents. Second, it allows for linkages with various other datasets within the Statistics Canada Education and Labour Market Longitudinal Linkage Platform (ELMLP). This includes the national Census, which contains extensive demographic information for one in four households within Canada. It also includes administrative income tax files which contain information on every person who filed taxes within the country. This combination of data sources allows for the analyses of both participation in WIL and the labour market outcomes of WIL participation. Moreover, the vastness of the PSIS files- which contain millions of students- allows for reliable estimates of dynamics at the institutional level, something which is currently not possible through the NGS unless its sample size is significantly increased. A main disadvantage of this approach is that it leads to the under-counting of students within the college sector given that the PSIS represents one snapshot in time, whereas many colleges have a continuous intake of students.

A NOTE ON MEASURING QUALITY IN WIL

For years, there has been a strong focus in Canada on measuring the quantity of WIL activity, such as the number of students who participate in WIL or programs with a WIL component. This is motivated in part by the desire of funders and PSE institutions to tout the sheer amount of activity they have promoted or delivered in this domain. At the same time, commentators have long noted the need to account for the quality of delivered WIL experiences and their efficacy in promoting outcomes of interest, such as skills development or improved school-to-work transitions. Nearly a decade ago, Weingarten (2016) astutely noted with respect to the broader concept of experiential learning:

We hear endlessly about the importance of evidence-based decision making. The call for more experiential learning offers a terrific opportunity for its application. Surely, evidence, data and evaluation should be used to determine how well different experiential education opportunities are working [emphasis added]. Those that produce the best results should be deemed best practice and disseminated. Those that are less effective should be acknowledged as having given it the old college try but then amended to provide better results.

Of course, this measurement and evaluation is easier said than done within the realm of WIL. Part of the challenge is that consensus is only slowly emerging around potential quality measures, with considerable debate still occurring over the suitability of evolving quality frameworks. As Zegwaard & Pretti (2023) note, “quality dimensions of WIL remain a topical issue in the WIL literature” (p. 7; also see Campbell & Pretti, 2023).

In the Australian context, for example, Winchester-Seeto ([2019](#)) has outlined a laundry list of dimensions of quality associated with prospective WIL experiences (see Table 4), which include elements like the authenticity of experiences, degree of student preparation, availability of supporting learning activities, and an inclusive approach to WIL. An important feature of frameworks such as these is that they are primarily composed of dimensions and concepts that facilitate the evaluation of the processes and characteristics of WIL programs rather than student- centric evaluation of experiences or outcomes.

Table 4. Dimensions of WIL quality

Dimension	Definition
Authenticity of Experience	WIL experience permits students to engage meaningfully with tasks in a professional environment.
Embeddedness in curriculum	WIL experience is integrated with academic curriculum, with a clear focus on student learning
Student Preparation	Student is adequately prepared to undertake WIL experience.
Supporting learning activities	Student is afforded with learning opportunities during and pre/postWIL experience to enable learning.
Supervision	The student receives quality supervision throughout the entireWIL journey to facilitate their success.
Reflection	Reflective activities take place throughout the WIL journey to promote understanding of student development (e.g., skills, knowledge).
Debriefing	Facilitated reflection on WIL experience occurs.
Assessment	Student growth is evaluated by both PSE institutions and partner organizations (e.g., employers, industry, community organization).
Inclusive Approach	Students are able to participate in WIL without facing systematic barriers to their success.

Source: Adapted from Winchester-Seeto ([2016](#))

The checklist-like structure of existing quality frameworks is also evident when we look at the University of Waterloo’s ([n.d.](#)) “AAA” quality framework and its application to the identification of activities an employer, industry, or community partner (e.g., host organization) should engage in before, during, and after the WIL experience.

Table 5. Employer Checklist for Enabling Quality WIL

Timing	Tasks
Before	Engage with PSE partner to share your objectives and learn about the prospective alignment between available WIL programs and your needs.
	Clearly communicate your expectations/needs through job postings and other mediums to allow students to evaluate their fit for the WIL role.
	Highlight what the student will learn through WIL at your organization and describe the workplace culture/environment.
	Participate in screening/selection to recruit WIL students.
During	Designate someone to support the WIL student, ideally a person that can more easily relate to the student, such as a recent PSE graduate.
	Assign the student meaningful work duties and help them understand how this work contributes to the broader success of the organization.
	Provide routine feedback to the student on their performance and areas for future improvement.
	Engage the PSE institution partner when challenges arise with the WIL student that could be collaboratively addressed.
After	Perform a formal evaluation of a student’s WIL performance and provide it to the PSE partner.
	Perform an exit interview with the WIL student and solicit feedback on how to improve future WIL experiences offered by your organization.
	Connect with the PSE partner and review your experiences offering WIL experiences, with a view towards identifying improvements to existing processes.

Source: Adapted from University of Waterloo ([n.d.](#))

McRae, Pretti, & Church (2018) have also provided an outline of broader activities that the various stakeholders need to enact to facilitate quality WIL. This includes pre-, during, and post-WIL activities that students; an employer, industry, or community partner (e.g., host organization); and educators need to carry out to facilitate quality WIL experiences. Again, this framework provides a useful template to holistically evaluate and structure processes at various stages of the WIL journey for each entity.



Table 6. Framework of Activities by Stakeholders for Quality WIL

Stakeholder	Pre-WIL	During WIL	Post-WIL
Student	Prepares for WIL experience by participating in available curricular preparatory activities.	Engages with work, co-workers, and expectations of the academic program.	Meets all expectations through completion of WIL experience. Reflects on experience and learning.
Partner/host organizations	Prepares for the arrival of the student.	Provides students with meaningful work experience connected to program of study. Provides necessary supports.	Provides assessment of student learning and performance. Considers areas for improvement.
Educators	Support student and partner organization in preparatory activities and assessments.	Monitor student progress and provide support to students and partner organizations.	Facilitate student reflection and conduct follow-up with host to evaluate experience.

Source: Adapted from McRae, Pretti,& Church (2018)

Though often rooted in the experiences of WIL practitioners, evidence of the link between certain “best” practices and objective improvements in student experiences or outcomes within the Canadian context is not always readily available. And, as Ferns & Arsenault (2023) acknowledge specifically with respect to the quality standards embedded into accreditation processes, such standards are not always validated by empirical research. For example, we have evidence of a relationship between student self-reflection on clarity about vocational goals (e.g., Drewery, Nevison, & Pretti, 2016), but empirical evidence of the benefits of other elements of these quality frameworks is less readily available.[9] As such, there is a need for continued research and evaluation to determine whether certain “best” practices – which currently enjoy the support of the WIL community at large – actually result in improved student outcomes. [10]

[9] In the specific case of student preparation, Winchester-Seeto & Rowe (2023) admit that “most literature on preparation in WIL is practice-based and anecdotal” (p. 441). And, though they provide useful discussion of prospective strategies to prepare students for WIL, they do not present empirical evidence of their relative efficacy.

[10] It is worth noting that the perceived beneficial nature of some of these practices date back decades. For example, CEWIL Canada first established criteria governing the accreditation of co-op programs in 1979. As such, certain practices have withstood the test of time, but others may require re-validation.

Part of the challenge in evaluating the efficacy of some of these best practices is that we currently lack access to datasets that holistically capture variation in adherence to these outlined practices on the part of WIL programs across Canadian postsecondary education. Further, there is—to our knowledge—no systematic tracking of students’ WIL experiences at the sector level. A dataset containing these two pieces of information could allow for the rigorous evaluation of how exposure to differentially structured WIL programs translates into disparate experiences and outcomes for students. This type of evaluation could go a long way towards identifying the ideal “recipes” for WIL program structures.

Running parallel to quality standards outlined by WIL practitioners and endorsed by CEWIL Canada are standards endorsed by professional bodies. For example, the Canadian Professional Accounting Ontario Association (CPA Ontario) imposes specific requirements on accounting students’ practical experience components. However, as Ferns & Arsenault (2023) note, these largely align with those endorsed by CEWIL Canada.





CHALLENGES TO DELIVERING WIL

Challenges to the delivery of quality WIL experiences are well-documented both in academic (e.g., Bilsand et al., [2020](#); Rook, [2017](#)) and policy research (e.g., BHER, [2022](#); Chatoor, [2023](#); Sattler & Peters, [2013](#)). Below we provide an overview of this discourse, with a particular focus on dynamics in Canada wherever possible.

PSE INSTITUTIONS

There are a range of challenges that PSE institutions face in their delivery of quality experiences. As we detailed in a previous study (Academica Group, [2016](#), p. 44-46), these include:

- **External stakeholder relations:** A significant amount of effort is required to establish and maintain relationships with an employer, industry, or community partners that support WIL opportunities (Green et al., [2023](#)). Stakeholder relations is a function that is becoming increasingly difficult as more PSE institutions enter this space. An employer that grows dissatisfied with their experience with a particular institution's WIL program now has multiple institutions waiting to supply them with students. This raises the stakes for those managing WIL at institutions.
- **Student preparation:** Students also require upfront training to ensure that they are successful during WIL experiences (McRae, Pretti, & Church, [2018](#)). Survey data from WIL staff at Ontario PSE institutions show that the most common activities used to achieve this include structured WIL prep courses (56%), one-on-one career advising (34%), on-demand workshops (e.g., résumé writing, interviewing) (24%), and in-class applied experiences (e.g., lab simulations) (18%) (R.A. Malatest, [2018](#), p. 35).
- **Internal stakeholder relations:** Faculty members (e.g., instructors, professors) are key to the development and delivery of effective WIL programming, particularly that which is offered at the course level. Though many cite faculty resistance as a challenge (Fannon, [2023](#)), survey data suggest that faculty are generally supportive of WIL and understand its value for students (Peters, [2012](#)). However, faculty have many competing demands on their time and they do not always perceive that they are adequately rewarded for their role in developing WIL programming, either in the form of financial compensation or credit during tenure/promotion decisions.

Authors have noted that the “under-resourcing of support staff and the lack of value placed on WIL workload are key barriers to WIL at an institutional level” (Baichoo et al., [2023](#), p.328), as well as to the more general growth of WIL within postsecondary institutions. As such, WIL offices are often juggling external and internal stakeholder relations and student preparation in the absence of adequate staff support.

As they struggle to perform these varied functions, studies suggest that WIL programs are faced with an evolving set of environmental pressures that actively work against their odds of success.

- **Imbalances in Supply and Demand:** As mentioned previously, as more PSE institutions enter the WIL market, competition for every potential placement increases. At the same time, student demand for quality WIL experiences has grown considerably over the years. These countervailing trends leave WIL staff trying to do more with less, with the result at times being that students go without WIL experiences or get allocated to a sub-optimal experience.
- **Shifting Stakeholder Expectations:** Increasingly students feel entitled to meaningful WIL experiences that will allow them to exercise and develop relevant skills beyond stereotypically menial tasks (e.g., photo copying, fetching coffee). At the same time, employers now expect regular access to highly skilled students that are ready to hit the ground running, with a view towards addressing critical human resource needs in their organizations. For both groups, expectations do not always match reality. WIL offices are responsible for adjusting expectations accordingly.
- **Moving Targets:** A primary objective of WIL is to prepare students for the world of work. However, this is a dynamic target and one that often changes its trajectory in unexpected ways. The pace of change has arguably accelerated in recent years in response to the pandemic-driven shift to remote work and other ongoing disruptions (Gardner & Perry, [2023](#)). Technology is also constantly threatening to upend varied sectors of the economy. The result is that PSE institutions are challenged to prepare students for an uncertain occupational future.

PARTNER ORGANIZATIONS

Recent research (Fleming et al., [2023](#); Itano-Boase et al., [2021](#)) has catalogued some of the challenges that host organizations (e.g., employer, industry, or community partner) face when attempting to provide quality WIL experiences for students. These range from not having suitable work to offer students to lacking the human resources to provide adequate supervision or not being able to ensure that students are protected from workplace discrimination.

Table 7. Challenges Faced by Partner Organizations

Challenge Type	Sources
Lack of resources <ul style="list-style-type: none"> • Relevant and suitable work activities • Adequate supervision • Time and expertise • Appropriate student support 	Atkinson et al. (2015), Fleming and Pretti (2019), Fleming et al. (2021), Jackson et al. (2017), Winchester- Seeto et al. (2021)
Student Recruitment <ul style="list-style-type: none"> • Attracting students with the right skills and knowledge • Student selection process • Alignment of HE schedules • Physical location of placement organization 	Atkinson et al. (2015), Atkinson (2016), Jackson et al. (2017), Quillan and Bourke (2021)
Financial/Legal <ul style="list-style-type: none"> • Financial impact of student wages and staff time • Legal requirements, such as labor laws and health & safety • Student exploitation • Insurance and liability • Assessing and managing risk 	Atkinson (2016), Bennett (2008), Cameron (2018), Fleming and Hay (2021), R.A. Malatest (2018)
Well-being & EDI <ul style="list-style-type: none"> • Student exclusion within the workplace • Student accessibility to WIL opportunities • Workplace discrimination (e.g.,sexism, racism, ageism, and classism) 	Cukier et al., (2018), Chatoor & Balata (2023); Felton and Harrison (2017), Mackaway and Chalkley (2022), Hay and Mafile'o (2022), Mallozzi and Drewery (2019)

Source: Adapted from Fleming et al. (2023), p. 120.

Research by Academica focusing on Ontario employers suggests that the main reason (66.3%) why employers do not plan to offer WIL is because they feel they have no suitable work available. This obstacle was cited more than twice as often as the inability to find students with the necessary skills (31.4%) or not having staff to recruit/supervise students(31.4%) (Sattler & Peters, 2012, p. 52). Among those who had stopped offering WIL, having no suitable work for students was also the most common reason (59%) for discontinuing their WIL participation (p. 54).

Beyond having no suitable work available, Sattler (2011) notes that some organizations also face financial hurdles when it comes to offering quality WIL experiences. As one employer noted: “Money is always an issue. Budget is the main thing that decides whether we are able to keep a student or not.” (p. 84).

Another notable challenge cited by employers is that students lack the skills or competencies expected. As several employers in Sattler's ([2011](#)) and Sattler & Peters' ([2012](#)) studies in Ontario expressed:

- “The biggest challenge is that the students are so unaware of what a work office setting requires, even simple manners, being courteous to clients, etc.” (Sattler & Peters, [2012](#), p. 58)
- “Sometimes we don’t get the professionalism the clients expect. We struggle with students appreciating the level of responsibility required – there are fewer good students, more students we struggle with. This is extremely time-consuming for me.” (Sattler, [2011](#), p. 86)
- The challenge is quality control, and students lacking basic skills. This is a tough business – I’m not here to keep track of kids’ cell phones, their social calendar. ... It seemed like the placement officer was more interested in getting the job than the student.” (Sattler, [2011](#), p. 86)
- “It was a real time-zapper for me – we couldn’t use their product, and it was unfulfilling for the students. They didn’t seem to understand the importance of keeping appointments, responding to emails. They didn’t recognize that they need to approach every connection in a professional way.” (Sattler, [2011](#), p. 86)

More recent survey data gathered by ICTC (Cutean et al., [2023](#), p. 26) from nearly 1,700 Canadian employers has noted that the most common barriers to participating in WIL programs include:

- The time required to train and supervise students (50-55%, depending on sub-sample)
- A mismatch between project needs and the short availability of students (28-26%)
- Insufficient number of quality WIL students (25-26%)

Interestingly, roughly a quarter of employers in the sample funded through SWPP suggested they would have hired their WIL students even in the absence of current wage subsidies. Just under half suggested the opposite, while the remainder were unsure about what they would have done.





CHALLENGES TO ACCESSING WIL

Researchers note that structural barriers at multiple stages prevent many equity-deserving students from accessing WIL opportunities. They note that these barriers may push students to not enroll in a WIL program or to self-select out of said programs mid-way, cause them to encounter prejudice during the WIL experience, and even prevent access to reflective activities (Goldman et al., 2023, p. 510). Communities that are typically believed to face significant barriers to accessing WIL include students who self-identify as Black, Indigenous, and racialized communities more broadly; international students; students with disabilities; LGBTQ+ students, students from low socio-economic backgrounds; and students with caregiving responsibilities.

Recent survey data gathered by ICTC (Cutean et al., [2023](#), p. 26-27) notes that the most commonly cited barriers to participating in WIL by students include:

- Additional expenses incurred through WIL (14-25%, depending on sub-sample)
- Having to delay graduation as a result of participating in WIL (12-24%)
- Increased workload (9-24%)
- Absence of WIL program offerings at their home institution (3-20%)
- Having to relocate for their WIL placement (13-18%)

Quantitative research on who participates in WIL provides useful insight into which groups experience difficulties accessing WIL within the Canadian context. Analyses of survey data from students at 13 Ontario PSEs by Sattler & Peters ([2013](#)) found that college students who were female; older; had more loan debt; were not first-generation PSE students; and those in health, social, and community services programs were statistically more likely to participate in WIL experiences of some sort. Meanwhile, for university students, those who were not first-generation students or immigrants as well as those in STEM, health sciences, and social service programs were the most likely to participate in WIL. From this research we learn that disparities in access differ markedly across sectors.

Research focusing on national trends using the 2013 National Graduates Survey has echoed some of these findings, showing that in recent years women represent more than 50% of participants in co-op programs at both the bachelor's and college level (Rodriguez et al., [2016](#), p. 6). More recent work with the 2018 NGS has similarly found that women participate in WIL at higher rates (9% to 23%) across every credential tier by a statistically significant margin (Galarneau et al., [2020](#), p. 2).

Moreover, such work has found that graduates who are 40 years or older are generally less likely to have participated in WIL opportunities during their postsecondary studies. Across other dimensions, this research observed that students who were international (vs. domestic) and those who reported having a disability were less likely to report having participated in WIL, thus providing some evidence that these groups experience challenges accessing these opportunities. However, there were no differences in participation rates observed among students who identified as Indigenous and those who did not.

Research done at one southern Ontario university has revealed that students who report having a mental health disorder were 3.3 times less likely to report having participated in a WIL experience (e.g., Gatto et al., [2021](#)). In addition, the authors observed that students with a better self-reported understanding of accommodations were also more likely to have participated in WIL.

Although empirical research on the topic lags, commentators (Fannon, [2023](#); Itano-Boase et al., [2021](#)) suggest that international students face challenges in the acquisition of co-op work permits and funding to support their participation in WIL opportunities.

Large-scale survey data on the barriers faced by students during WIL experiences is more difficult to come by in Canada. Sattler & Peters ([2013](#)) note that among university students, insufficient preparation was a primary challenge cited by 50.5% of surveyed students. Survey data showed that university students also commonly cited time demands (47.4%), boring work (43.4%), and unexpected financial costs (40.9%) as challenges. College students cited unexpected financial costs (51.1%), time demands (45.3%), insufficient preparation from school (38%), and boring work (38%) as issues.



When it comes to reasons for not participating in WIL, the most commonly cited reason for both college and university students was not wanting to delay or disrupt their program. This is a theme that re-emerges in the literature (e.g., Cutean et al., [2023](#); R.A. Malatest, [2018](#)).

More recent work done at the University of Calgary (Stowe et al., [2022](#)) focusing just on students at UCalgary found that “a lack of time due to other academic priorities” (86%) is the most common responsibility cited by students as influencing their decision to not participate in experiential learning opportunities (p. 10). At the same time, a sizable share of students cited a “lack of time or exhaustion due to working a part-time job(s)” (51%), and travel time/costs (46%) as influencing their participation. It thus appears that time and cost constraints feature prominently in student decision-making around WIL.

More recent work commissioned by HEQCO (R.A. Malatest, [2018](#)) has shed light further onto the challenges that students face in accessing quality WIL experiences. This work has found that students are concerned about having to take on additional debt due to costs associated with having to relocate/commute to participate in WIL experiences. “Hidden” costs such as expenses related to clothing or equipment, childcare, or other family obligations are also top of mind (R.A. Malatest, concerned about having to take on additional debt due to costs associated with having to relocate/commute to participate in WIL experiences. “Hidden” costs such as expenses related to clothing or equipment, childcare, or other family obligations are also top of mind (R.A. Malatest, [2018](#), p. 48). Although not explored, it is likely that these cost-related concerns are likely to be acute for students from lower socio-economic backgrounds who may not be able to rely on family to help subsidize WIL experiences. HEQCO-funded work has also found that international students face distinct challenges while attempting to access WIL opportunities. This includes having limited English language competency or knowledge about the local labour markets or workplace cultures (R.A. Malatest, [2018](#), p. 56).

A report published by the Diversity Institute at Toronto Metropolitan University (Cukier et al., [2018](#)) has noted that though WIL has the potential to help international university students to transition into the Canadian labour market, “these students often struggle in securing WIL placements when their English-language skills are still developing and when they lack access to social and professional networks” (p. 8).

It suggests that these students are often perceived by employers as coming from a “position of deficit” and are also subject to prejudicial attitudes that are rooted within workplaces (p. 8). At the same time, research presented by the University of Alberta (Dapaah, Mills, & Tam, 2023) at the CEWIL Canada 2023 conference fails to find any evidence of wage discrimination against international students once they do secure a placement.



The Diversity Institute report similarly notes that “the discussion of access and accommodation for students with disabilities is a nascent one” within the WIL domain (Cukier et al., [2018](#), p. 8). Nevertheless, Cukier et al.’s (2018) analyses of the 2013 NGS failed to produce much evidence of disparities in co-op participation across demographic lines. That being said, work by Galarneau et al ([2020](#)) with the 2018 NGS shows inconsistent disability effects on broader WIL participation.

Recent research conducted by the Higher Education Quality Council of Ontario (Chatoor & Balata, [2023](#)) has documented sizable disparities in student satisfaction with WIL experiences across multiple demographic dimensions. They observed that students that reported having a disability and self-identified as women were less likely to express satisfaction with their WIL experiences. These findings do need to be treated with some caution as they are based on a small and unrepresentative sample of the student population.

Recommendations made to render WIL more inclusive often include the incorporation of universal design principles into WIL program development, the modification of prerequisites to WIL programs to remove barriers for students who struggle academically, the provision of additional funding for students, and providing staff with training to help them work with equity- deserving groups (Goldman et al., [2023](#)).





BENEFITS OF WIL

There are numerous recognized benefits to WIL participation for students, partner organizations/communities, and PSE institutions. [11] Many of these are almost taken-for-granted by WIL supporters, but a subset have also been rigorously examined through empirical peer-reviewed research. It is also worth noting that Canadian research on many of these benefits is predominantly focused on co-op participation.

BENEFITS TO STUDENTS

The benefits of WIL to students are routinely discussed through academic, policy, and public discourse. [CEWIL Canada](#), for example, notes that WIL participation not only gives students a “well-rounded education,” but also allows students to:

- Gain experience and network with professionals in an industry of interest,
- Develop valuable workplace skills,
- Earn money to help pay tuition costs, and
- Explore different career opportunities.

Similar sentiments are echoed by nearly every major stakeholder in Canadian PSE. Universities Canada ([2016](#)) has emphasized that WIL can provide “relevant experience to ease the transition from education into the workforce.” Polytechnics Canada ([2022](#)) has suggested that WIL experiences can provide “intimate understanding” of the world of work that can position students for a “smooth transition from education to employment.” Meanwhile, Colleges and Institutes Canada ([2017](#)) has described WIL as a tool through which to ensure that “students are given access to invaluable hands-on work experience.”

But, what does the data tell us about how students benefit? There is a vast international empirical literature that has documented the benefits of WIL for students. Jackson & Cook ([2023](#)) recently summarized the benefits documented through this literature (see Table 8). However, within the Canadian context, research is relatively limited and data coverage is not always nationally or even regionally representative.

[11] Various literature review-based analyses of the benefits to WIL – particularly internships – have been conducted over the last decade by international scholars (e.g., Maertz et al., [2014](#); Velez & Giner, [2015](#)). Our effort through this section is to focus as much as possible on dynamic within the Canadian context.

Table 8. Benefits to Students

Benefit	Supporting Literature
Enhanced academic performance	Brail (2016); Drysdale & McBeath (2018); Jones et al. (2017); Prescott et al. (2021); Song et al. (2017)
Improved “Capitals”, including human, cultural, identity, or psychological	Anderson et al. (2012); Kay et al. (2018); Smith (2014); Zegwaard & McCurdy (2014).
Professional identity development	Dvir and Avissar (2014); Grace & Trede (2013); Jackson (2017a; 2017b); Mahon et al. (2020); Roberts (2017)
Improved (perceived) employability	Barton et al. (2019); Clark et al. (2015); Kay et al. (2018); Jackson & Wilton (2017)
Employment Outcomes	Pizarro Milian et al (2021); Wyonch (2020)

Source: Adapted from Jackson & Cook (2023)

> ACADEMIC PERFORMANCE

Cutean, Henville, & Rice (2023, p. 11) have recently catalogued a relationship between WIL participation and a series of academic indicators. As they note, students who participate in co-op are:

- Less likely to change their majors (Drysdale et al., 2015)
- More likely to achieve a higher grade point average (Drysdale & McBeath, 2018; Parker et al., 2016)
- Less worried about their studies (Drysdale & McBeath, 2014)
- More likely to graduate (Ramirez et al., 2015)
- More satisfied with their programs (MacDonald et al., 2014)

Moreover, they emphasize that there is evidence that these and other benefits of WIL are amplified for students from traditionally marginalized groups, including racialized students and females. Comparable evidence of the impact of other forms of WIL is also available south of the border. For example, studies have found that participation in community service learning improved retention (Bringle et al., 2010; Reed et al., 2015) and graduation rates (Yue & Hart, 2017).

> EARNINGS DURING CO-OP

Starting with immediate financial benefits from WIL, data reported to CEWIL Canada suggests that the average hourly wage earned by co-op students varies considerably by program area, from \$18.57 in the hospitality/tourism/recreation category to \$26.73 for those in mathematics/finance. Through these data we see that the wages earned by co-op students in certain scenarios are only slightly above minimum wage. Meanwhile, in other cases co-op students in high-demand areas (e.g., finance) are more handsomely rewarded. Projecting based on this hourly wage to a 4-month term, assuming the average 464-hour length reported by CEWIL CANADA, this translates into a total of roughly \$9,400 to \$12,400 for students per co-op work term.

Table 9. Co-op Wages by Program Area

Academic Discipline	Hourly Wage	4-Month Term
Agriculture	\$20.94	\$9,716.16
Arts/Humanities/Social Sciences	\$20.53	\$9,525.92
Business/Administration	\$20.47	\$9,498.08
Computer Science	\$22.01	\$10,212.64
Engineering	\$23.11	\$10,723.04
Health/Legal	\$18.92	\$8,778.88
Hospitality/Tourism/Recreation	\$18.57	\$8,616.48
Mathematics/Finance	\$26.73	\$12,402.72
Science	\$20.30	\$9,419.20
Technical/Trades	\$22.53	\$10,453.92

Source: Drewery (2023)

We can also ascertain wages for co-op students based on listed ranges for large employers in unionized environments where these figures are standardized. For example, within the federal government in 2022, we see that co-op rates for college/cégep students range from \$16 to \$21.24 depending on what academic level students are at. Meanwhile, rates for undergraduate students are slightly higher at \$16.99 to \$25.52. Lastly, at the graduate level we see rates range from \$22.71 to \$34.59.

Table 10. Federal Co-op Wages

Academic Levels	Step 1	Step 2	Step 3	Step 4	Step 5	Step 6	Step 7
College / CEGEP	\$16.00	\$16.84	\$17.83	\$18.90	\$20.04	\$21.24	N/A
Undergraduate	\$16.99	\$18.17	\$19.48	\$20.80	\$22.29	\$23.85	\$25.52
Master's	\$22.71	\$24.50	\$26.46	\$28.57	N/A	N/A	N/A
Doctorate	\$26.72	\$29.12	\$31.74	\$34.59	N/A	N/A	N/A

Source: Government of Canada ([2022](#))

Survey data gathered by Cutean et al. ([2023](#)) suggests that SWPP students received monthly wages that were \$1,182 higher than what they reported they could have made through other available work opportunities (p. 37). Moreover, they suggested that SWPP students were making \$221 more a month than what they considered was the minimum acceptable wage (p. 37).

Unfortunately, the above mentioned data are the only reliable and publicly available data we have on co-op student salaries outside of rates published by institutions (or specific units within them) for their own students. [12] The preeminent data source of workforce statistics in Canada – the Labour Force Survey (LFS) – has not traditionally captured salaries for co-op students, although there is opportunity for it to do so.

Interestingly, Sattler & Peters' (2013) survey data show that earning money is among the least common motivators for college and university students to participate in WIL, with other factors like gaining practical experience and enhancing resumes being far more common (p. 43).

> SKILLS DEVELOPMENT

Several studies have demonstrated that WIL participation is correlated with an increase across diverse types of skills. Most recently, analyses performed by Cutean et al. ([2023](#), p. 30-31) indicate that WIL participants have greater self-reported preparedness to use various skills in the workplace, including communication, numeracy, creativity/innovation, reading, digital skills, collaboration, and adaptability. We also have corroborating evidence that exposure to multiple WIL experiences tends to improve students' perceived employability by employers (Drewery & Pretti, [2021](#)), which serves as a useful proxy indicating that there is significant value added through these experiences.

[12] For example, see the [University of Ottawa](#) or University of Manitoba's [Asper School of Business](#)

Interview data gathered from WIL students in the Canadian mining sector have also produced convincing evidence pointing to soft skills development (de Raaf et al., [2018](#), p. 21):

I gained communication skills through a lot of experiences during my work term where I was communicating with a senior employee with 40 years of experience, people who are driving trucks, and new people on the mine site. You gain a lot of skills that you can't learn in the classroom. I learned how to communicate while being calm and non-confrontational.

In addition to the above mentioned data points, and as we document below, the prospective impact of WIL on skills development and career preparation can also be proxied through the improved labour market outcomes associated with WIL participation.

> LABOUR MARKET OUTCOMES AFTER WIL

There is evidence that students who participate in WIL have elevated confidence that they will find a job after graduating and land a job related to their studies, and that they also expect higher earnings in the medium term (e.g., Cutean et al., [2023](#)). We have ample evidence—dating back decades (Darch, [1995](#); Frenette, [2004](#); Walters & Zarifa, [2008](#))—that this confidence is warranted, as co-op participation is related to various proxies of labour market performance (for a review, see Pizarro Milian et al., [2021](#)).

Finnie & Miyairi's ([2017](#)) analysis of administrative data from five Ontario colleges and universities linked to federal income tax records determined that co-op graduates had mean earnings that were consistently higher than their counterparts who did not participate in co-op. The estimated co-op participation benefits for college graduates—which were consistent with previous studies (Peters, Sattler, and Kelland [2014](#); Walters & Zarifa, [2008](#))—were smaller than those observed for university counterparts. Galarneau et al.'s ([2020](#)) more recent work with the 2018 NGS has identified contrasting trends. While WIL participation produced a 7% income boost only for university graduates, both college and university graduates who participated in WIL were less likely to be overqualified for their jobs than those who were lacking WIL experience.

A primary limitation of the above mentioned studies is that they do not account for self-selection into WIL. In other words, students who participate in WIL may differ from their counterparts with respect to their commitment to skills development and other attributes that would allow them to excel in the labour force irrespective of WIL participation.

Wyonch's (2020) analysis of the 2013 NGS attempted to address this using quasi-experimental statistical techniques. She estimated that co-op participation produced a \$4,130 earnings boost for university students, while returns to college graduates who participated in co-op programs were statistically insignificant (ibid). However, she found that co-op participation improved the likelihood of being employed full-time for both college and university graduates.

More recent regression-based analyses of the 2018 NGS by Pizarro Milian et al. (2021) show that both college and university graduates with co-op work-term have a roughly 10-percentage point lower chance of being overqualified for their jobs three years after graduating. Both college and university graduates who completed co-ops also experienced a 10-11% income boost. However, the earnings premium associated with co-op within the university sector proved more robust when tested using quasi-experimental techniques—including regression adjustment, inverse probability weighting, or propensity score matching—to address self-selection. [13]

Corroborating evidence on the labour market benefits of WIL are also available through surveys of employers. Though now dated, a survey of employers conducted by Academica in 2013 found that employers reported paying recent PSE graduates with WIL experience higher hourly wages compared to those lacking that experience (Sattler & Peters, 2012, p. 33-34). Moreover, employers reported that, during the hiring process, WIL experience was perceived as being just as important as the student's program of study or credential.



Research on the employment-related benefits of forms of WIL other than co-op is limited in Canada, mostly due to the absence of data linking participation in these specific forms of WIL to outcomes of interest. Nevertheless, we know from the international literature that both internships (Baert et al., 2021; Margaryan et al., 2022) and community service learning (Matthews, Dorfman, & Wu, 2015) correspond with improved labour market performance.

[13] Though we do not discuss it, the broader international literature on the returns to various forms of WIL – particularly co-op and internships – is far more mixed in its results than its Canadian counterpart.

> OTHER BENEFITS

Beyond financial, skills, and employment-related outcomes, sources also suggest that various forms of WIL can promote social benefits. For example, Bandy (2011) argues that community engagement or service learning improves students' "personal efficacy, personal identity, spiritual growth, and moral development". At the same time, she notes that this form of WIL can reduce stereotypes and promote greater inter-cultural understanding, improve social responsibility and citizenship skills, and increase involvement in the community post-graduation. There is evidence to support some of these assertions. Celio et al.'s (2011) meta-analysis of 62 studies involving nearly 12,000 students determined that service-learning corresponded with increased civic engagement, among various other outcomes (e.g., attitudes towards self, learning, social skills). Yorio & Ye's (2012) meta-analysis also found that service learning was linked to an increase in understanding of social issues. Lastly, Eppler et al.'s (2011) study found that service learning improved college freshmen's motivations for volunteering and social attitudes, as well as the number of hours they volunteered.

BENEFITS TO PARTNER ORGANIZATIONS

The academic literature covering the benefits of WIL to host organizations has been recently reviewed (Fleming et al., 2023), but research focusing on the Canadian context represents a small subset of this work. The latter requires specific attention given the distinctiveness of the Canadian context vis-à-vis other jurisdictions.

The University of Waterloo's [Work-Learn Institute](#) outlines that one important benefit to host/partner organizations is the ability to *pre-screen* prospective employees in the absence of a long-term commitment. This is a strategy that is cited by Drewery et al (2019), as a motivating factor for employers to participate in WIL:

Often employers participate in co-op to determine which students might make the best organizational members... They use the co-op work term to *screen* [emphasis added] students' talents and develop relationships that promote conversion. (p. 34)

Grubb & Villeneuve's (1995) now dated American study contains a detailed interview excerpt that allows us to directly observe how employers—in their own words—make sense of co-op as a part of their screening process:

It avoids the hiring mistakes for us because you know you've got two years and you really do know an awful lot about the student. The student knows about us and it's so costly to make hiring mistakes. So we feel that is one of the major benefits. I did a small study [and] there is a greater retention rate of the former co-op versus a new hire... And so we only hire our co-ops and I can see the difference, just outstanding young people. It also gives us the competitive edge in recruiting that we identify these people early on, especially minorities and females. We're going to identify them in their freshmen, early sophomore year and not wait. They're not going to be there [interviewing] when they're seniors and companies are recruiting on campus. (p. 9)

These sentiments are repeated in work done north of the border by researchers at the Work-Learn Institute and the Social Research and Demonstration Corporation (de Raaf et al., [2018](#)) based on interviews with Canadian employers. Through such work we see that employers value co-op for its ability to evaluate students in the absence of commitment:

If they [don't work out] *it's no risk, I'm not hiring them* [emphasis added], they're not, they're only here a couple days a week but they're learning, I'm learning, and sometimes I get a future staff member so it's like a *trial run for staff* [emphasis added]. (Drewery, Pretti, & Church, [2021](#), p. 282)

WIL is an opportunity to showcase the organization and industry for the student to consider for their career. It gives the company the opportunity to assess the student, their work ethic, their contributions on the job, *and it is a probationary period prior to making the hiring decision* [emphasis added]. It reduces the recruitment costs if you don't have a successful recruitment (de Raaf et al., [2018](#), p. 21)

Evidence of this dynamic has also been obtained through interviews with WIL students themselves, thus evidencing the taken-for-granted nature of this arrangement:

Especially in poor market conditions, a lot of companies are not willing to take a risk on a candidate that they haven't worked with before. *So the co-op position is basically an extended interview* [emphasis added]. There is little risk for the company because you are on a fixed term contract. *They are evaluating you constantly* [emphasis added] and if you are making a good impression, they will want to bring you back as a full time employee. (de Raaf et al., [2018](#), p. 24)

The best supporting quantitative evidence for this dynamic—whereby employers use WIL experiences as opportunities to evaluate future workers—is data gathered by Academica Group through a HEQCO-funded employer survey conducted a decade ago. Through this study, roughly 70.2% of employers indicated that the desire to “pre-screen” potential new hires was a motivation for offering WIL (Sattler & Peters, [2012](#), p. 43). Further, roughly half (52%) of the employers who employed recent PSE graduates reported that at least one of these hires had participated in a WIL experience within their company (Sattler & Peters, [2012](#), p. 29).

More recently, Cutean et al, ([2023](#)) observed through their survey of SWPP employers that evaluating students for future long-term employment was the most important benefit from SWPP participation. In addition, Statistics Canada’s first quarter Survey on Business Conditions found that businesses that believe labour shortages will be an obstacle over the coming three months were 12.8 percentage points more likely to plan to work with education and training institutions to offer WIL programming, including co-ops, internships, and apprenticeships (Morissette, [2022](#)). In doing so, it provides evidence that firms that are concerned about talent acquisition are currently tapping into WIL as a method to acquire that talent.

Beyond giving employers the opportunity to screen prospective workers, [MAGNET](#) argues that WIL provides them the opportunity to build their brand:

...Eventually, those student employees will return to school, or to their peer group, where they’re certain to swap details of how things went in their temporary workplace. *When students enjoy positive work experiences, they’ll often become on campus brand ambassadors for your business or organization, telling others about how well they were treated [emphasis added].* This advocacy on your behalf will help your business attract a deeper pool of talented candidates in the future.



Again, older data gathered through interviews with employers conducted by Academica (Sattler, [2011](#), p.72-73) over a decade ago provide support for this assertion:

It's a great way to brand yourself – if students have a great experience, you are branded as a great place to work. (Employer/community partner)

Our name is positively associated with a learning institution – we want to be known as a great agency to work for, to do a placement with. (Employer/community partner)

Rebranding ... we need to be very good at attracting and retaining young talent, we need to be actively involved in co-op programs, seen as a good place to work. It must be regularized, not just one-offs – word of mouth among students is very quick, if they don't have a good experience, word gets out. (Employer/community partner)

The ability to reach more students and efficiently screen them overlaps with other key motivators for organizations to engage in WIL that are cited in the literature, including the ability to increase organizational capacity, improve workplace culture, augment staff development opportunities, and connect with PSE institutions (see Table 11).



Table 11. Benefits to Partner Organizations

Benefit Type	Benefit Sub-Type	Supporting Studies
Increased capacity	<ul style="list-style-type: none"> • Additional labor resource • Short-term cover for busy times • Special projects • Release of staff for higher/other roles • Lower cost/subsidized roles 	Cullen (2005), Fleming & Hickey (2013), Fleming & Pretti (2019), Maertz et al. (2014), Martin et al. (2019), Nevison and Pretti (2016), Smith et al. (2015)
Improved organizational culture	<ul style="list-style-type: none"> • Fresh perspectives and ideas • Enthusiastic and motivated students • Staff role modeling • Shared learning and knowledge sharing • Broadening networks • Lower staff turnover 	Braunstein and Stull (2001), Fernset al. (2019), Ferns et al. (2021), Fleming & Pretti (2019), Kessels & Kwakman (2007), Martin et al. (2019), Wang et al. (2018)
Staff development	<ul style="list-style-type: none"> • Opportunity for staff to learn to manage staff/students • Development of supervision and mentoring skills • Leadership development 	Braunstein & Stull (2001), Fernset al. (2021), Fleming and Pretti (2019), Fleming et al. (2021), Jackson et al. (2017), Martin et al. (2019), Smith et al. (2015)
Connection with educational institutions	<ul style="list-style-type: none"> • Access to and sharing of research knowledge • Access to specialized equipment • Research and development opportunities • Opportunities to give presentations to students • Co-branding for marketing purposes 	Ferns et al (2014), Ferns et al. (2019), Ferns et al. (2021), Zegwaard & McCurdy (2014)

Source: Adapted from Fleming et al. (2023)

Recent statistical modeling by analysts at ICTC (Cutean et al., 2023)—which accounts for the perceived value of the labour provided by students and the actual wages paid for said work—suggests that SWPP employers derived an average of roughly \$400/per student, per month (p. 35-36).

BENEFITS TO HOST COMMUNITIES

The impacts of WIL on communities have received limited attention. Work done by Deloitte on behalf of the University of Waterloo (2019) provides some indication of the sizable impact that a single institution can have on their surroundings via WIL offerings. This report suggests that, in 2018/2019, UWaterloo’s co-op program contributed:

1. \$567M to Canada's gross domestic product
2. \$410M to Ontario's GDP
3. \$251M to Waterloo's GDP
4. Created 5,779 full-time equivalent jobs in Canada (excluding co-op terms themselves)
5. Created 4,230 full-time equivalent jobs in Ontario (excluding co-op terms themselves)
6. Created 2,593 full-time equivalent jobs in Waterloo (excluding co-op terms themselves)

Beyond the University of Waterloo, and evaluations of the impact of specific WIL funding programs (e.g., ISED, [2022](#)), we were unable to collect additional quantitative evidence of the impact of WIL at the community level.

BENEFITS TO PSE INSTITUTIONS

The benefits of WIL for PSE institutions are less commonly discussed than the benefits for students or partner organizations/communities. Perhaps this is due to them being largely taken for granted by practitioners in the field or due to the absence of empirical data. Nevertheless, they are worth outlining here. Recent international research (Aprile et al., [2023](#)) has catalogued primary benefits to PSE institutions as including:

1. Developing a **reputation** for producing work-ready graduates among prospective employers
2. Enhancing the **student experience** through providing meaningful WIL experiences that promote confidence, maturity, and skills development
3. Collaborating with industry partners to **produce research and innovation**
4. Facilitating **corporate and community engagement** outside of WIL

There is some overlap between the themes covered in this international literature and dynamics observed domestically. Universities Canada ([2016](#)) suggests that quality WIL programs can help to “attract top students” to an institution. And, there is some evidence suggesting that Canadian students are becoming more sensitive to the availability of quality WIL opportunities, and that this is becoming a factor driving institutional selection. For example, in the 2022 CUSC Survey of First-Year Students, 48% of respondents suggested that the presence of WIL in their program was important or very important for selecting their current university. This figure has held relatively steady over the last few iterations of the survey.

Table 12. Percentages citing WIL as an important motivator to attend current university

Year	Rate
2022	48%
2019	51%
2016	52%

Source: Canadian University Survey Consortium
([2016](#); [2019](#); [2022](#))

Trends in the CUSC data correspond closely with a survey executed by Abacus Data ([2016](#)) on behalf of the Business + Higher Education Roundtable (BHER). 63% of respondents to that survey indicated that the availability of co-op or work experience through their program was an important factor that shaped their choice of PSE institution.

The growing influence of WIL on student decision-making is reflected in the budding media interest in the ranking of co-op programs, a practice that has historically focused only on institutions, departments (e.g., law schools), or lucrative degrees (e.g., MBAs). South of the border, the U.S. News and World Report produces a list of colleges/universities offering “stellar examples” of co-op/internships. They do so based on nominations provided by leaders surveyed across 1,500 PSE institutions. The resulting list of institutions presented in the rankings (see below) includes many with more modest, regional reputations that normally sit outside the “summit” of conventional university rankings. This is perhaps indicative of the fact that a unique form of recognition is granted to the institutions that excel in this domain. These institutions include:

1. Northeastern University
2. Drexel University
3. Berea College
4. University of Cincinnati
5. Duke University
6. Georgia Institute of Technology
7. Massachusetts Institute of Technology
8. Purdue University
9. Elon University
10. Cornell University

Source: [U.S. News and World Report](#)

In Canada, the ranking of co-op programs has failed to fully materialize, as prominent outlets like *Maclean's* do not yet produce an equivalent to the U.S. News and World Report's ranking of co-op/internships.

There has, however, been media commentary in publications like Maclean's about disparities in the quality of co-op programming across Canadian postsecondary education (e.g., Galt, [2016](#)). Additionally, earlier in 2023 we saw that [Course Compare](#)—a website that describes itself as “Canada’s marketplace for education”—published a new ranking of “Canada’s Best Co-op Programs of 2023.” Although the methodology and data sources used to produce this ranking are unclear, it nonetheless produced a clear hierarchy with a number of well-known WIL providers in the Greater Toronto Area (e.g., UWaterloo, Seneca, Humber) dominating the top spots. Similar coverage of “top” co-op programs have also been produced in 2023 by other student-facing websites like [University Magazine](#), [Edmission](#) and [Yocket](#), the latter of which had been viewed over 26,500 times at the time of writing. Again, the methodology and data used to produce these lists and rankings leaves much to be desired, but their existence serves as proxy for interest in this type of information among prospective students.

As student interest in accessing quality WIL becomes further cemented, offering said service emerges as a strategy through which PSE institutions can develop and differentiate their brands within highly competitive markets. A reputation for offering access to high quality WIL will ensure that postsecondary institutions are included in discussions about where students who want to participate in co-op, internships, and other emerging forms of work-integrated learning should pursue an education in Canada.

On the employer side, we have heard for over a decade that WIL also serves as a tool through which to bolster institutional reputations among hiring organizations. Several respondents in Sattler & Peters’ study ([2012](#), p. 74) noted that this was an important benefit of offering WIL:

The *reputation* [emphasis added] that our students gain in the corporate world helps the university with its reputation and leads to more employers hiring our students.

When students go out, the industry is amazed with what they see. The skills that the students bring to the industry *reflect back on the college* [emphasis added].

The “flip side” of this dynamic, whereby WIL serves as an avenue through which institutions can develop their reputation among employers, is the presence of reputational risk. Cameron et al. ([2023](#)) define reputation risk as an “issue that affects the image, brand, standing, or public perception of the institution, host/partner organizations, and potentially the specific WIL program in which the student is enrolled” (p. 417). It can be triggered by the exposure of students to risks of physical or psychological harm, exploitation, and various other dynamics during their placement.

Beyond reputational impacts, research has found that PSE institutions see WIL as an opportunity to develop relationships with the business world that can result in access to other resources such as donations, equipment, and expertise. For example, through interviews for an evaluation of WIL within the mining sector, respondents employed within PSE institutions suggested that (de Raaf et al., [2018](#), p. 17-18):

We keep a very good relationship with the labour market – by having our students go there [to WIL placements]... It also helps with [the] institution in terms of use of equipment or other donations. It makes it easier to ask for money or for them to donate to us the equipment that they are replacing. It's also a way for us to find members for our Program Advisory Committees. The more links we have and the more we talk to these kinds of people the more we know. We improve the curriculum through Program Advisory Committees where we meet once a year to talk about what we do, but very often if an employer is hosting one of our students for an eight- week placement, it is an opportunity to hear what the [employer] expects that student to know or skills they expect them to have.

If we are constantly talking to the companies about opportunities for students to work with them, we get to learn what the needs are of the mining industry and we are better able to adjust the curriculum or create workshops that are relevant and that teach skills that are relevant to what the professionals use now in the industry.





RECENT DEVELOPMENTS IN WIL

Several innovations have emerged within WIL in recent years. Some of these are long-term trends that were simply accelerated by the COVID-19 pandemic (e.g., online WIL), while others are a function of gradually evolving market dynamics – such as the growing demand for formal certification of learning experiences (e.g., micro-credentialing). Below we briefly comment on some of these trends.

ONLINE / REMOTE WIL

When the pandemic pushed the entire world into remote working and learning arrangements in early 2020, WIL was also pulled along for the ride (Briant & Crowther, [2020](#); Perkins & Irwin, [2023](#)). Since this juncture, online internships and other forms of WIL have grown increasingly popular (Dean & Campbell, [2020](#)). Beyond allowing the WIL system to quickly adapt to public health measures issued during the pandemic, remote access to WIL opportunities has been heralded as increasing access for traditionally marginalized groups given that it breaks down the geographical, financial, and other associated barriers discussed earlier in this document (Jeske & Linehan, [2020](#); Kraft et al., [2019](#)). As demand for remote work has proven “sticky” even in the absence of public health measures, it is likely that we will continue to see stakeholders strategically leverage remote WIL as an option to link students with available opportunities.

In response to the rise of online WIL, sector stakeholders in various jurisdictions quickly adapted existing quality standards and protocols to ensure the value of these new experiences (Perkins & Irwin, [2023](#), p. 272-273). Nevertheless, concerns remain about the prospective drawbacks of participating in WIL remotely, such as the negative effects that online formats can have on students’ ability to effectively develop social networks and the potentially isolating nature of these experiences. These concerns are supported by research performed in Ontario by HEQCO (Chatoor, [2023](#)) which found that hybrid/remote WIL students were more likely to report challenges in understanding expectations, knowing where to go for help, and being given less challenging work (p. 16). At the same time, students who participated in in-person WIL were more likely to report having developed inter-personal skills (p. 19). Employers were also least likely to report that remote WIL students experienced skills development in the realms of critical thinking, problem solving, and inter-personal skills (p. 23).

Chatoor ([2023](#)) concludes that “remote WIL increases access and helps students develop workplace skills, but there remains some work to do to ensure that students and employers in those placements receive full value” (p. 25). On the business side, research by Bieler ([2021](#)) similarly observed that the shift to remote WIL placed unique strains on small and medium-sized enterprises lacking the digital infrastructure to adapt to this new form of delivery.

MICRO - CREDENTIALING

Recent years have witnessed increasing interest in the use of micro-credentials to represent learning that is not readily communicated through the possession of traditional “macro” credentials, such as diplomas or degrees (Duklas, [2020](#), p. 8). Canadian WIL researchers and practitioners (e.g., Ashcroft et al., [2021](#)) have moved quickly to consider how micro-credentials could be used to formally recognize the acquisition of specialized skills and competencies acquired by students through their WIL experiences.

In 2023, eCampusOntario ([2023](#)) published a new document—*Work-Integrated Learning (WIL) Framework: Employability Skills and Micro-credentials*—through which it sought to provide a framework for the integration of micro-credentialing and WIL. It first provided guidance on how to identify “employability” skills obtained through WIL experiences, including various types of basic, socioemotional, and transferrable competencies. Then it presented its existing micro-credentials framework (eCampusOntario, [2020](#)) as a vehicle through which to formally recognize such skills. The latter framework places an emphasis on—among other principles—ensuring that credentialed competencies are in demand within the labour market, verifiable by external entities, and based on rigorous assessment.

In addition to publishing these frameworks, eCampusOntario ([2020b](#)) has also funded a pilot project between UWaterloo and Electricity Human Resources Canada (EHRC) through which micro-credentials were granted to co-op students who achieve a grade of at least 80% in a professional development course and a rating of “superior” in their co-op performance evaluation. This is a pilot that has attracted the attention of WIL practitioners across the country (e.g., BCcampus, [2021](#)).

Other efforts to recognize WIL experiences using micro-certifications include York University’s Change Apprentice, Changemaker, and Master Changemaker WIL programs offered in collaboration with [IBM Advanced Studies](#). Students who complete these programs/WIL experiences are issued a digital badge that is co-branded with IBM and recognizes their participation and fulfillment of the program’s requirements.

While there has been a push for micro-credentialing to be incorporated into WIL initiatives, we have also seen examples of WIL experiences being added to pre-existing micro-credentialing arrangements. For example, at Saskatchewan Polytechnic, students enrolled in Microsoft Fundamental course offerings are now given the opportunity to exercise the skills they have learned through a 20-hour WIL opportunity facilitated through the Riipen platform (Sask Polytech, [2022](#)).

It seems likely that we will continue to hear about developments at the intersections of WIL and micro-credentialing given the interest this has piqued in the sector and the continued financial support that pilots in this area have garnered from multiple stakeholders (e.g., Cuenco, [2022](#)).

> ANOTHER MICRO?

Beyond the credentialing component, there is also increasing interest in offering shorter WIL experiences. This is readily apparent through government funding initiatives like ESDC's [Innovative Work-Integrated Learning \(IWIL\) Initiative](#), which focuses on “short-term, high intensity, technology assisted opportunities.” Included among IWIL-eligible opportunities are short-term work placements, virtual internships, hackathons, business cases, and classroom projects to help the community. On the institutional side, we have also seen American institutions like the University of Cincinnati embrace the “micro co-op” branding for WIL experiences such as project-based internships or freelancing that generally last no more than 30 days and focus on the completion of clearly defined projects designed by a host/partner organization (Alanson et al., [2020](#)). Domestically, we have also seen RBC's ([2023](#)) Future Launch program support the Riipen platform to increase access to experiential education experiences, including micro WIL. The latter is described as providing project-based experiences “that often directly [fit] right into your curriculum,” thus providing a level of flexibility not available through more macro forms of WIL. It is worth noting that, despite the new branding and terminology, some of these micro-WIL are not all that different from conventional WIL offerings that can be short in their duration, a prime example being short community or industry research projects. As such, the heightened interest and motivation on this front may not correspond with what some practitioners would perceive as a novel form of WIL.

INDIGENOUS WIL

As with other areas of Canadian PSE, there is increasing interest in not just eliminating the barriers that Indigenous students face when attempting to access WIL, but in tailoring WIL programming to better meet the distinct needs of Indigenous students and their communities (e.g., Arney, [2022](#); Doyle & Traplin, [2022](#); Ramji et al., [2021](#)).

There is much important work happening in this domain, and several initiatives are worth drawing attention to here.

In 2021, the Business + Higher Education Roundtable (BHER) announced a [partnership](#) with Volunteer Canada—a registered charity—to support the creation of WIL experiences for Indigenous students. The partnership would leverage Volunteer Canada’s networks of non-and for-profit organizations to facilitate WIL experiences for students while also aiming to enhance participation in WIL among Indigenous-led businesses and businesses in Indigenous communities. It would also result in the creation of a “best” practices handbook for delivering WIL experiences for Indigenous students that would be shared with the sector.

In 2022 the Business Council of Manitoba ([2022](#)) established a WIL program in conjunction with its pre-existing Indigenous Education Awards program with the stated goal of empowering Indigenous students via workplace learning. Through it, the Council directly responded to industry interest in facilitating the recruitment and retention of Indigenous talent while at the same time providing valuable and safe work experiences for students.

Since 2015, the University of Victoria has administered a program that supports Indigenous students’ participation in international WIL experiences via exchange with Australia. The program first prepares students through a preparatory seminar that gives them the requisite knowledge to work with Indigenous communities. Indigenous students subsequently travel to Australia to complete a 4-month co-op term. The program is valued for its ability to promote the employability of Indigenous students while strengthening their connection to Indigenous traditions and communities. This program has won the 2019 British Columbia Council for International Education’s Award for Outstanding Program in International Education, along with the CBIE 2019 Panorama award. [14]

There is, of course, a need for ongoing work to engage with Indigenous communities to ensure that WIL meets their particular needs as rights-bearing communities, as opposed to mere stakeholders. As Crane et al. ([2019](#)) note within the Australian context, WIL discourse has tended to focus on the specific benefits to students and institutions, to the detriment of considering how WIL can be structured to serve these communities. Canadian researchers (e.g., Nielsen, Livernoche, & Ramji, [2022](#)) have catalogued many next steps which are required to address existing barriers, ranging from providing more financial support for Indigenous students to more meaningfully engaging with Indigenous communities.

[14] For additional details, see [CEWIL Canada](#)

APPLICATIONS OF AI

In 2023, the rise of ChatGPT saw mass interest in artificial intelligence. Data gathered through Academica's StudentVu panel at the beginning of this year showed that 60% of Canadian PSE students were aware of ChatGPT, and roughly 40% of those that were aware of the technology reported having used it (Pizarro Milian & Janzen, [2023](#)).

As with other areas of the system, WIL practitioners quickly moved to leverage the power of this technology. One example is [InStage](#), an AI-based software solution used by various large PSE organizations such as Humber, Seneca, and Queen's, to help students develop their presentation skills. The software allows students to practice for job interviews, presentations, or business pitches to a series of digital avatars with whom they can interact in real time. The software, in turn, provides a detailed report that outlines the speed and volume of the presenter's speech and usage of filler words (e.g., "ummm").

A second adoption of AI technology was demonstrated during the 2023 CEWIL CANADA conference by the University of Alberta (Tam, Dapaah, & Mills, 2023) and pertained to its use of vMock to help engineering co-op students edit and receive detailed feedback on their resumes. Through this case study, we saw a first successful application of AI to reduce the amount of time that WIL staff had to dedicate to reviewing poorly written resumes, along with increased student satisfaction from receiving real-time advice from the platform. This is likely the first of many applications of AI technology to the streamlining of WIL-related administrative processes.

There remain many questions about the prospective impact of ChatGPT-like technologies on the field of WIL, such as:

- Can ChatGPT enable cheating on WIL assessments? (e.g., Nikolic et al., [2023](#)).
- How can WIL experiences better prepare students for a labour market that increasingly embraces AI-driven technologies? (Trent University, [2023](#))
- Could AI technologies be used to generate immersive 3D environments for students participating in remote WIL experiences? (Chávez Tellería, [2023](#))

The answers to these and other questions will have important implications for how we conduct WIL in Canada and other jurisdictions.

PROFESSIONALIZATION

Prior to the pandemic, Zegwaard and colleagues (2019, p. 202) writing from the vantagepoint of various national systems argued that:

Facilitating WIL, including relationship building, organizing placements and the assessment of learning during placement, differs significantly from 'typical' taught university programs, that is, people involved with facilitating WIL require a very particular set of skills. However, opportunities to develop these skills through professional development opportunities are, it seems, limited.

Kay et al. (2023) have similarly noted that "Access to the professional development opportunities required to be an effective WIL practitioner is limited or nonexistent in many universities" (p. 585).

In response to this and other calls for the augmentation of upskilling opportunities for WIL practitioners, CEWIL Canada developed the [WIL practitioner certificate](#) for interested staff or faculty members who are facilitating the delivery of WIL across the country. This asynchronous program, delivered via three modules, is designed to:

1. Help WIL professionals to think through how existing research can inform their daily work.
2. Allow them to reflect on existing processes used at their institution to evaluate student learning, support student reflection, and engage with stakeholders.
3. Enact strategies to improve the quality of WIL programs.

Individuals who complete these modules must also accumulate at least two years of WIL working experience, be a member in good standing of CEWIL CANADA, and possess a postsecondary credential prior to receiving their WIL practitioner designation. This shift towards the professionalization of WIL practitioners mirrors the growing formal certification of a range of other occupational groups in adjacent fields within Canadian PSE (e.g., career development services). The implications of this certification process for the standing of WIL practitioners within institutions remains to be seen.

CEWIL Canada's certificate program will complement available programming offered via GlobalWIL.org, and jointly developed by CEWIL Canada and the Australian Collaborative Network Limited (ACEN), Work-Integrated Learning New Zealand (WILNZ), and The Vilar Network (Sweden).





CONCLUSION

Through this report we have sought to map existing knowledge about various topical issues within the Canadian WIL landscape. As a reading of this report will quickly demonstrate, there is much to be excited about, as recent changes – some of which were at first driven by pure necessity (e.g., online/remote WIL) – have quickly evolved into common practice, often unlocking new benefits and opportunities for various parties in our system. In other cases, we have seen WIL practitioners engage in more premeditated and strategic experimentation with new technologies (e.g., Artificial Intelligence) that promise to increase the efficiency and quality of student supports. Perhaps most importantly, we are also seeing earnest and intensified efforts across the WIL community to be more welcoming and inclusive of communities that have been traditionally marginalized in the Canadian postsecondary sector. Across these and other domains, we are confident that WIL in Canada is trending in the right direction.

Unfortunately, the positivity we express above does not extend to every scenario. A common theme across nearly every section of this report, surfacing both when we explore simple and complex questions, pertains to the strong limitations that current data gathering and reporting structures place on our understanding of WIL. Despite the wealth of experience and expertise contained within the WIL community, arriving at basic facts, such as the number of students that participate in WIL every year in Canada, requires laborious efforts to cobble together a series of imperfect sources only to arrive at an educated guess. As such, we feel that there is a demonstrated need for more leadership around the systematic collection, rigorous analysis, and efficient dissemination of WIL-related information Canada. It is only through investments in said activity that we can hope to empirically inform strategies that can help to drive greater quality, equity, and inclusion into our work.

Through the next phase of this project, Academica Group will engage in extensive and multi-modal data gathering efforts on CEWIL Canada's behalf. This will include consultations with various groups across the country, including WIL practitioners across diverse institutions, representatives from student organizations, industry, government, and community organizations, along with several other stakeholder groups. In addition, we will be fielding two online surveys that will aim to gather fresh WIL-related data directly from current students, as well as individuals currently supporting the delivery of WIL in Canada in various capacities. Through these efforts, we hope to gather timely intelligence that can fill important gaps in our knowledge of the state of WIL in Canada, while also helping to spark future discussions and research in this space.



REFERENCES

Abacus Data. (2016). Work Integrated Learning and Post-secondary Education: What Students Think. <https://www.bher.ca/sites/default/files/documents/2020-08/What-students-think.pdf>

Academica Group (2016). Taking the Pulse of Work-Integrated Learning in Canada. Ottawa, ON: BHER. www.bher.ca/sites/default/files/documents/2020-08/BHER-Academica-report-full.pdf

Alanson, E. R., Alanson, E. M., Arthur, B., Burdette, A., Cooper, C., & Sharp, M. (2020). Re-Envisioning Work-Integrated Learning during a Pandemic: Cincinnati's Experiential Explorations Program. *International Journal of Work-Integrated Learning*, 21(5), 505-519.

Anderson, E. Johnston, N., Iles, L., Mcrae, N., Reed, N., & Walchli, J.. (2012). Co-operative education and student recruitment, engagement and success: Early findings from a multi-institutional study in British Columbia. *Journal of Cooperative Education and Internships*, 46(1), 58-76.

Aprile, K., Sladen, I., & Stellar, J. (2023). Benefits of work-integrated learning for educational institutions. In *The Routledge International Handbook of Work-Integrated Learning* (pp. 131-144). Routledge.

Arney, N. (2022). A relational understanding of learning: Supporting Indigenous work-integrated learning students. *International Journal of Work-Integrated Learning*, 23(2), 153-167.

Atkinson, G. (2016). *Work-based learning and work-integrated learning: Fostering engagement with employers*. National Centre for Vocational Education Research.

Atkinson, G., Misko, J., & Stanwick, J. (2015). Work integrated learning in STEM disciplines: employer perspectives. Adelaide, AUS: National Centre for Vocational Education Research.

Ashcroft, K., Etmanski, B., Fannon, A. M., & Pretti, T. J. (2021). Micro credentials and Work- Integrated Learning. *International Journal of Work-Integrated Learning*, 22(3), 423-432.

Baert, S., Neyt, B., Siedler, T., Tobback, I., & Verhaest, D. (2021). Student internships and employment opportunities after graduation: A field experiment. *Economics of Education Review*, 83, 1-11.

Baichoo, M., Fane, J., Loken, T., & Mahood, A. (2023). Establishing and managing a blended approach to institutional work-integrated learning. *In The Routledge international handbook of work-integrated learning* (pp. 325-341).

Bandy, J. (2011). What is Service Learning or Community Engagement?. Vanderbilt University Center for Teaching. <https://cft.vanderbilt.edu/guides-sub-pages/teaching-through-community-engagement/>.

Barton, G., Hartwig, K., & Le, A. H. (2019). International students' perceptions of workplace experiences in Australian study programs: A Large-Scale Survey. *Journal of Studies in International Education*, 23(2), 248-264.

BC Campus (2021). Micro-Credentials and Work-Integrated Learning: A Natural Alignment. <https://bccampus.ca/2021/03/16/micro-credentials-and-work-integrated-learning-a-natural-alignment/>

Bennett, K. C. (2008). Managing experiential education: Work-integrated learning in the context of a cost-benefit analysis. *Journal of Cooperative Education and Internships*, 42(2), 34-44.

BHER. (2022). Key things to know about WIL in rural, remote and Northern areas. <https://bher.ca/sites/default/files/2022-08/BHER-Key%20things%20to%20Know%20in%20RRN.pdf>

BHER and BCC. (2022). Empowering People for Recovery and Growth: 2022 Skills Survey Report. https://bher.ca/sites/default/files/2022-03/Empowering%20People%20for%20Recovery%20and%20Growth%202022%20Skills%20Survey%20Report_3.pdf

Bieler, A. (2021). WIL in a post COVID-19 World. Ottawa, ON: The Conference Board of Canada

Bilsland, C., Nagy, H., & Smith, P. (2020). Virtual Internships and Work-Integrated Learning in Hospitality and Tourism in a Post-COVID-19 World. *International Journal of Work-Integrated Learning*, 21(4), 425-437.

Brail, S. (2016). Quantifying the value of service-learning: A comparison of grade achievement between service-learning and non-service-learning students. *International Journal of Teaching and Learning in Higher Education*, 28(2), 148-157.

Braunstein, L. A., & Stull, W. A. (2001). Employer benefits of, and attitudes toward postsecondary cooperative education. *Journal of Cooperative Education and Internships*, 36 (1), 7-22.

Briant, S., & Crowther, P. (2020). Reimagining internships through online experiences: Multi- disciplinary engagement for creative industries students. *International Journal of Work- Integrated Learning*, 21(5), 617-628.

Bringle, R. G., Hatcher, J. A., & Muthiah, R. N. (2010). The role of service-learning on the retention of first-year students to second year. *Michigan Journal of Community Service Learning*, 16(2), 38-49.

Business Council of Manitoba (2022). Boost Your Career: Engage in The Work-Integrated Learning Program. <https://businesscouncil.mb.ca/work-integrated-learning-program/>

Cameron, C. (2017). The strategic and legal risks of work-integrated learning: An enterprise risk management perspective. *Asia-Pacific Journal of Cooperative Education*, 18(3), 243-256.

Cameron, C. (2018). The student as inadvertent employee in work-integrated learning: A risk assessment by university lawyers. *International Journal of Work-Integrated Learning*, 19(4), 337-348.

Cameron, C., Flemin, J., Hay, K., & Hewitt, A. (2023). Risk management of work-integrated learning. In *The Routledge International Handbook of Work-Integrated Learning* (pp. 413-427). Routledge.

Campbell, M., & Pretti, T. J. (2023). Quality indicators of work-integrated learning. In *The Routledge International Handbook of Work-Integrated Learning* (pp. 342-360).

Crane, P., Brough, M., & Fisher, T. (2019). Openness and reciprocity: Indigenous community requirements for hosting university students. *Higher Education Research & Development*, 38(4), 703-716.

Celio, C. I., Durlak, J., & Dymnicki, A. (2011). A meta-analysis of the impact of service-learning on students. *Journal of experiential education*, 34(2), 164-181.

Chatoor, K. (2023). Working (and Learning) Online: Improving Remote Work-integrated Learning Experiences for Students and Employers. Toronto, ON: HEQCO. <https://heqco.ca/pub/working-and-learning-online-improving-remote-work-integrated-learning-experiences-for-students-and-employers/>

Chatoor, K. & Balata, L. (2023). Student Identity and Work-integrated Learning (WIL): Exploring Student Experiences of WIL by Demographic. Toronto, ON: HEQCO.

Chávez Tellería, R. (2023). Artificial Intelligence in Higher Education: How to Explore Horizons of Change. <https://www.ecampusontario.ca/artificial-intelligence-in-higher-education-how-to-explore-horizons-of-change/>

Clark, M., McKague, M., Ramsden, V. R., & McKay, S. (2015). Deeper learning through service: Evaluation of an interprofessional community service-learning program for pharmacy and medicine students. *Journal of Research in Interprofessional Practice and Education*, 5(1), 1-25.

Colleges & Institutes Canada (2017). CICan welcomes launch of new Student Work-Integrated Learning Program. <https://www.collegesinstitutes.ca/news-release/cican-welcomes-launch-of-new-student-work-integrated-learning-program/>

Cooper, L., Orrell, J., & Bowden, M. (2010). *Work integrated learning: A guide to effective practice*. Routledge.

Cukier, W., Campbell, M., & McNamara, L. (2018). Ensuring equitable access to work-integrated learning in Ontario. Toronto, ON: Ryerson University.

CUSC (2015). 2015 Graduating Student Survey Master Report. <https://cusc-ccreu.ca/wordpress/?lang=en&download=141&tmstv=1695911543>

CUSC (2016). 2016 First-year University Student Survey Master Report. <https://cusc-ccreu.ca/wordpress/?lang=en&download=139&tmstv=1695930021>

CUSC (2018). 2018 Graduating Student Survey Master Report. <https://cusc-ccreu.ca/wordpress/?lang=en&download=376&tmstv=1695911543>

CUSC (2019). 2019 First-year University Student Survey Master Report. <https://cusc-ccreu.ca/wordpress/?lang=en&download=523&tmstv=1695930021>

CUSC (2021). 2021 Graduating Student Survey Master Report. <https://cusc-ccreu.ca/wordpress/?lang=en&download=922&tmstv=1695911543>

CUSC (2022). 2022 First-year University Student Survey Master Report. <https://cusc-ccreu.ca/wordpress/?lang=en&download=1084&tmstv=1695930021>

Cuenco, M. (2022). Micro credentials in flux Challenges, opportunities and insights from FSC's portfolio. Toronto, ON: Future Skills Centre.

Cutean, A., Henville, L., & Rice, F. (2023). The Impact of Workforce Integrated Learning on Student Success and the Canadian Economy: A Case Study of Canada's Student Work Placement Program (SWPP). Ottawa ON: ICTC.

Cullen, M. (2005). Environmental science cooperative education: Benefits for the student, the host organization, and the study program. *International Journal of Work-Integrated Learning*, 6(2), 1-6.

Dapaah, A., Mills, F., & Tam, A. (2023). International Students in Canada: Leveraging Data to Better Understand Co-op Experiences. Presentation at CEWIL Canada's 2023 Conference. Halifax, NS.

Darch, J., (1995). Labour market outcomes for university co-op graduates. Ottawa, ON: Statistics Canada.

de Raaf, S., Holroyd, H., Wannell, T. (2018). The Business Case for Work-Integrated Learning in Mining. Kanata, ON: Mining Industry Human Resources Council.

Dean, B. A., & Campbell, M. (2020). Reshaping work-integrated learning in a post-COVID-19 world of work. *International Journal of Work-Integrated Learning*, 21(4), 355-364.

Doyle, J., & Traplin, J. 2022. Identifying Challenges, Creating Opportunities: Indigenous Students and Work-Integrated Learning at UBC. Vancouver, BC: University of British Columbia.

Drewery, D. (2023). CEWIL Canada Data Report 2022. Toronto, ON: CEWIL Canada.

Drewery, D., Church, D., Pretti, J., & Nevison, C. (2019). Testing a model of co-op students' conversion intentions. *Canadian Journal of Career Development*, 18(1), 33-44.

Drewery, D., Nevison, C., & Pretti, T. J. (2016). The influence of cooperative education and reflection upon previous work experiences on university graduates' vocational self-concept. *Education+ Training*, 58(2), 179-192.

Drewery, D., & Pretti, T. J. (2021). Number of work experiences and student employability. In *The practice of co-op and work-integrated learning in the Canadian context* (pp.48-57). CEWIL Canada.

Drysdale, M. T., Frost, N., & McBeath, M. L. (2015). How Often Do They Change Their Minds and Does Work-Integrated Learning Play a Role? An Examination of "Major Changers" and Career Certainty in Higher Education. *Asia-Pacific Journal of Cooperative Education*, 16(2), 145-152.

Drysdale, M. T., & McBeath, M. (2014). Exploring hope, self-efficacy, procrastination, and study skills between cooperative and non-cooperative education students. *Asia-Pacific Journal of Cooperative Education*, 15(1), 69-79.

Drysdale, M. T., & McBeath, M. (2018). Motivation, self-efficacy and learning strategies of university students participating in work-integrated learning. *Journal of Education and Work*, 31(5-6), 478-488.

Duklas, J. (2020). *Micro-Credentials: Trends in Credit Transfer and Credentialing*. Vancouver, BC: British Columbia Council on Admissions and Transfer (BCCAT).

Dvir, N., & Avissar, I. (2014). Constructing a critical professional identity among teacher candidates during service-learning. *Professional development in education*, 40(3), 398-415.

eCampusOntario (2020a). Micro-credential Principles and Framework. <https://www.ecampusontario.ca/wp-content/uploads/2020/11/Micro-credentials-en1.pdf>

eCampusOntario (2020b). What does a micro-certification pilot really look like? <https://www.ecampusontario.ca/what-does-a-micro-certification-pilot-really-look-like/>

eCampusOntario (2023). Work-Integrated Learning (WIL) Framework: Employability Skills and Micro-credentials. <https://openlibrary-repo.ecampusontario.ca/jspui/bitstream/123456789/1749/1/WIL-OER-EN-Final.pdf>

Eppler, M. A., Ironsmith, M., Dingle, S. H., & Erickson, M. A. (2011). Benefits of Service-Learning for Freshmen College Students and Elementary School Children. *Journal of the Scholarship of Teaching and Learning*, 11(4), 102-115.

ESDC (2021). Evaluation of the Student Work Placement Program. <https://www.canada.ca/content/dam/canada/employment-social-development/corporate/reports/evaluations/student-work-placement/evaluation-student-work-placement-prog.pdf>

Fannon, A. M. (2023). The practice of cooperative education. In *The Routledge International Handbook of Work-Integrated Learning* (pp. 147-162). Routledge.

Felton, K., & Harrison, G. (2017). Supporting inclusive practicum experiences for international students across the social sciences: Building industry capacity. *Higher Education Research & Development*, 36(1), 88-101.

Ferns, S., Dawson, V., & Howitt, C. (2019). A collaborative framework for enhancing graduate employability. *International Journal of Work-Integrated Learning*, 20(2), 99-111.

Ferns, S., Phatak, A., Benson, S., & Kumagai, N. (2021). Building employability capabilities in data science students: An interdisciplinary, industry-focused approach. *Teaching Statistics*, 43, S216-S225.

Ferns, S. J., & Arsenault, C. (2023). Accreditation and quality in work-integrated learning. In *The Routledge International Handbook of Work-Integrated Learning* (pp. 361-380).Routledge.

Finnie, R. & Miyairi, M. (2017). *The Earnings Outcomes of Post-secondary Co-op Graduates: Evidence from Tax-linked Administrative Data*. Ottawa, ON: Education Policy Research Initiative.

Fleming, J., Ferns, S. J., & Zegwaard, K. E. (2023). Benefits of work-integrated learning for host organizations. In *The Routledge International Handbook of Work-Integrated Learning* (pp. 113-130). Routledge.

Fleming, J., & Hay, K. (2021). Understanding the Risks in Work-Integrated Learning. *International Journal of Work-Integrated Learning*, 22(2), 167-181.

Fleming, J., & Hickey, C. (2013). Exploring Cooperative Education Partnerships: A CaseStudy in Sport Tertiary Education. *Asia-Pacific Journal of Cooperative Education*, 14(3), 209-221.

Fleming, J., & Pretti, T. J. (2019). The impact of work-integrated learning students on workplace dynamics. *Journal of Hospitality, Leisure, Sport & Tourism Education*, 25, 100209.

Fleming, J., Rowe, A. D., & Jackson, D. (2021). Employers as educators: the role of work placement supervisors in facilitating the transfer of skills and knowledge. *Journal of Education and Work*, 34(5-6), 705-721.

Frenette, M. (2004). The overqualified Canadian graduate: the role of the academic program in the incidence, persistence, and economic returns to over qualification. *Economics of education review*, 23(1), 29-45.

Galarneau, D., Kinack, M., & Marshall, G. (2020). Work-integrated learning during post secondary studies, 2015 graduates. Ottawa, ON: Statistics Canada.

Galt, V. (2016). Students beware: Not all co-op programs are created equal. *Maclean's Magazine*.

Gardner, P., & Perry, A. L. (2023). Adapting to an accelerating, disruptive future: Melding work and learning through the role of the T-professional. *The Routledge international handbook of work-integrated learning*, 492-509.

Gatto, L. E., Pearce, H., Plesca, M., & Antonie, L. (2021). Students with Disabilities: Relationship between Participation Rates and Perceptions of Work-Integrated Learning by Disability Type. *International Journal of Work-Integrated Learning*, 22(3), 287-306.

Goldman, A. S., MacKay, G., Lowes, V. L., Henville, L., Gillies, J., Jairam-Persaud, C., ... & Walchli, J. (2023). Applying principles of equity, diversity, inclusion, and access in work-integrated learning. In *The Routledge International Handbook of Work-Integrated Learning* (pp. 510-532). Routledge.

Government of Canada. (2022). Student rates of pay – Effective May 1, 2022. <https://www.canada.ca/en/treasury-board-secretariat/services/pay/rates-pay/student-rates-pay.html>.

Grace, S., & Trede, F. (2013). Developing professionalism in physiotherapy and dietetics students in professional entry courses. *Studies in Higher Education*, 38(6), 793-806.

Green, E., Barry, R., Lawrence, J., Smith, B., Carey, A., Peelgrane, M., & Crawford, Z. (2023). Building sustainable partnerships and managing expectations of work-integrated learning stakeholders. In *The Routledge International Handbook of Work-Integrated Learning* (pp. 395-412). Routledge.

Grubb, W. N., & Villeneuve, J. C. (1995). Co-operative Education in Cincinnati: Implications for School-to-Work Programs in the US Technical Assistance Report.

Hay, K., & Mafle'o, T. (2022). Improving work-integrated learning experiences for Pacific students. *International Journal of Work-Integrated Learning*, 2(Special Issue), p. 279-294.

Itano-Boase, M., Wijesingha, R., Cukier, W., Latif, R., & Hon, H. (2021). Exploring Diversity and Inclusion in Work-Integrated Learning: An Ecological Model Approach. *International Journal of Work-Integrated Learning*, 22(3), 253-269.

ISED (2022). Evaluation of Innovation, Science and Economic Development Canada (ISED) Funding to Mitacs. <https://ised-isde.canada.ca/site/audits-evaluations/sites/default/files/attachments/2022/evalmitacs.pdf>

Jackson, D. (2017a). Developing pre-professional identity in undergraduates through work- integrated learning. *Higher Education*, 74, 833-853.

Jackson, D. (2017b). Exploring the challenges experienced by international students during work- integrated learning in Australia. *Asia Pacific Journal of Education*, 37(3), 344-359.

Jackson, D., & Cook, E. J. (2023). Benefits of work-integrated learning for students. In *The Routledge International Handbook of Work-Integrated Learning* (p. 93-112). Routledge.

Jackson, D., & Meek, S. (2021). Embedding work-integrated learning into accounting education: The state of play and pathways to future implementation. *Accounting Education*, 30(1), 63- 85.

Jackson, D., Rowbottom, D., Ferns, S., & McLaren, D. (2017). Employer understanding of work- integrated learning and the challenges of engaging in work placement opportunities. *Studies in Continuing Education*, 39(1), 35-51.

Jackson, D. & Wilton, N. (2017). Perceived employability among undergraduates and the importance of career self-management, work experience and individual characteristics. *Higher Education Research & Development*, 36(4), 747-762.

Jeske, D., & Linehan, C. (2020). Mentoring and skill development in e-internships. *Journal of Work-Applied Management*, 12(2), 245-258.

Jones, C. M., Green, J. P., & Higson, H. E. (2017). Do work placements improve final year academic performance or do high-calibre students choose to do work placements?. *Studies in Higher Education*, 42(6), 976-992.

Kay, J., Ferns, S., Russell, L., & Smith, J. (2018). Expanding work-integrated learning (WIL) possibilities: Enhancing student employability through innovative WIL models. Melbourne, AU: Australian Technology Network.

- Kay, J., Ferns, S., Russell, L., Smith, J., & Winchester-Seeto, T. (2019). The Emerging Future: Innovative Models of Work-Integrated Learning. *International Journal of Work-Integrated Learning*, 20(4), 401-413.
- Kay, J., McRae, N., Johnston, N., & Stellar, J. (2023). Establishing sustainable national and global networks for promoting work-integrated learning. In *The Routledge International Handbook of Work-Integrated Learning* (pp. 578-592). Routledge.
- Kessels, J., & Kwakman, K. (2007). Interface: Establishing knowledge networks between higher vocational education and businesses. *Higher Education*, 54, 689-703.
- Kraft, C., Jeske, D., & Bayerlein, L. (2019). Seeking diversity? Consider virtual internships. *Strategic HR Review*, 18(3), 133-137.
- MacDonald, K., Cameron, C., Brimble, M., Freudenberg, M., & English, D. (2014). Realizing the Professional Within: The Effect of Work Integrated Learning. *Asia-Pacific Journal of Cooperative Education*, 15(2), 159-178.
- Mackaway, J., & Chalkley, T. (2021). Student access and equity in work-integrated learning: A work in progress. In *Advances in Research, Theory and Practice in Work-Integrated Learning* (pp. 227-238). Routledge.
- Maertz Jr, C., Stoeberl, P., & Marks, J. (2014). Building successful internships: lessons from the research for interns, schools, and employers. *Career Development International*, 19(1), 123-142.
- Mahon, M., Conway, T., Farrell, M., & McDonagh, J. (2020). Service Learning As A Means To Develop Geography Graduates' Professional Identity. *AISHE-J: The All Ireland Journal of Teaching & Learning in Higher Education*, 12(1).
- Mallozzi, R., & Drewery, D. (2019). Creating Inclusive co-op workplaces: Insights from LGBTQ+ students. *International Journal of Work-Integrated Learning*, 20(3), 219-228.
- Matthews, P. H., Dorfman, J. H., & Wu, X. (2015). The impacts of undergraduate service-learning on post-graduation employment outcomes. *International Journal of Research on Service- Learning and Community Engagement*, 3(1), no page numbers.
- Margaryan, S., Saniter, N., Schumann, M., & Siedler, T. (2022). Do internships pay off? The effects of student internships on earnings. *Journal of Human Resources*, 57(4), 1242-1275..

Martin, A., Rees, M., Fleming, J., Zegwaard, K. E., & Vaughan, K. (2019). Work-integrated learning gone full circle: How prior work placement experiences influenced workplace supervisors. *International Journal of Work-Integrated Learning*, 20(3), 229-242

McRae, N., Pretti, T. J., & Church, D. (2018). Work-integrated learning quality framework, AAA. Waterloo, ON: University of Waterloo.

Morissette, R. (2022). Employer responses to labour shortages. Ottawa, ON: Statistics Canada.

Nielsen, J., Livernoche, R., Ramji, K. (2022). The Indigenous Work-integrated Learning Resource Hub: A needs-based approach to addressing barriers and opportunities for Indigenous students. *International Journal of Work-Integrated Learning, Special Issue*, 23(2), 139-152.

Nevison, C., & Pretti, T. J. (2016). Exploring cooperative education students' performance and success: A case study. *Asia-Pacific Journal of Cooperative Education*, 17(3), 325-335.

Nikolic, S., Daniel, S., Haque, R., Belkina, M., Hassan, G. M., Grundy, S., ... & Sandison, C. (2023). ChatGPT versus engineering education assessment: a multidisciplinary and multi- institutional benchmarking and analysis of this generative artificial intelligence tool to investigate assessment integrity. *European Journal of Engineering Education*, 48(4), p. 559-614.

Parker III, E. T., Kilgo, C. A., Sheets, J. K. E., & Pascarella, E. T. (2016). The differential effects of internship participation on end-of-fourth-year GPA by demographic and institutional characteristics. *Journal of College Student Development*, 57(1), 104-109.

Perkins, J., & Irwin, A. (2023). The practice of online internships. In *The Routledge International Handbook of Work-Integrated Learning* (pp. 271-288). Routledge.

Peters, J. (2012). Faculty Experiences with and Perceptions of Work-Integrated Learning(WIL) in the Ontario Postsecondary Sector. Toronto, ON: HEQCO.

Peters, J., Sattler, P., & Kelland J. (2014). Work Integrated Learning in Ontario's Postsecondary Sector: The Pathways of Recent College and University Graduates. Toronto, ON: HEQCO.

Pizarro Milian, R. & Janzen, R. (2023). How are Canadian postsecondary students using ChatGPT? London, ON: Academica Group.

Pizarro Milian, R., Seward, B., Walters, D., Wyonch, R. (2021). Work Integrated Learning- Does it Provide a Labour Market Advantage? Evidence from the 2018 National Graduates Survey. Toronto, ON: Research Initiative on Education + Skills.

Polytechnics Canada (2022). Polytechnics at Work. https://polytechnicscanada.ca/wp-content/uploads/2022/06/Polytechnics-at-Work_January-2022_V2.pdf

Prescott, P., Gjerde, K. P., & Rice, J. L. (2021). Analyzing mandatory college internships: Academic effects and implications for curricular design. *Studies in Higher Education*, 46(11), 2444-2459.

Quilliam, C., & Bourke, L. (2021). Perceptions of Work-Integrated Learning in Rural Health and Human Services under the National Disability Insurance Scheme in Australia. *International Journal of Work-Integrated Learning*, 22(2), 121-133.

R.A. Malatest (2018). Barriers to Work-integrated Learning Opportunities. Toronto, ON:HEQCO. https://heqco.ca/wp-content/uploads/2020/02/Formatted_Barriers-to-WIL_FINAL.pdf

Ramji, K., Kines, L., Hancock, R., McRae, N. (2021). Developing and delivering a culturally relevant international work-integrated learning exchange for Indigenous students. *International Journal of Work-Integrated Learning*, 22(3), 307-321.

Ramirez, N., & Main, J. B., & Ohland, M. W. (2015). Academic Outcomes of Cooperative Education Participation. Paper presented at 2015 ASEE Annual Conference & Exposition, Seattle, Washington.

RBC (2023). Riipen: Experiential learning while in school. <https://www.rbc.com/en/future-launch/resource-type/tools/experiential-learning-by-riipen/>

Reed, S. C., Rosenberg, H., Statham, A., & Rosing, H. (2015). The effect of community service learning on undergraduate persistence in three institutional contexts. *Michigan Journal of Community Service Learning*, 21(2), 22-36.

Roberts, C., Daly, M., Held, F., & Lyle, D. (2017). Social learning in a longitudinal integrated clinical placement. *Advances in Health Sciences Education*, 22, 1011-1029.

Rodriguez, C., Zhao, J., & Ferguson, S. (2016). Co-op participation of college and bachelor's graduates. Ottawa, ON: Statistics Canada.

Rook, L. (2017). Challenges Implementing Work-Integrated Learning in Human Resource Management University Courses. *Asia-Pacific Journal of Cooperative Education*, 18(3), 199-212.

Saskatchewan Polytech (2022). Riipen and Saskatchewan Polytechnic create work-integrated learning opportunities. <https://saskpolytech.ca/news/posts/2022/riipen-sask-polytech- create-work-integrated-learning-opportunities.aspx>

Sattler, P. (2011). *Work-Integrated Learning in Ontario's Postsecondary Sector*. Toronto, ON: HEQCO.

Sattler, P. & Peters, J. (2012). *Work-Integrated Learning and Postsecondary Graduates – The Perspective of Ontario Employers*. Toronto, ON: HEQCO.

Sattler, P. & Peters, J. (2013). *Work-Integrated Learning in Ontario's Postsecondary Sector – The Experience of Ontario Graduates*. Toronto, ON: HEQCO.

Smith, C. (2014). Assessment of student outcomes from work-integrated learning: Validity and reliability. *Asia-Pacific Journal of Cooperative Education*, 15(3), 209-223.

Smith, S., Smith, C., & Caddell, M. (2015). Can pay, should pay? Exploring employer and student perceptions of paid and unpaid placements. *Active Learning in Higher Education*, 16(2), 149-164.

Song, W., Furco, A., Lopez, I., & Maruyama, G. (2017). Examining the Relationship between Service-Learning Participation and the Educational Success of Underrepresented Students. *Michigan Journal of Community Service Learning*, 24(1), 23-37.

Stowe, L., O'Connell, Chew, S., Braun, R., Kaipainen, E. (2022). *Equitable Pathways to Experiential Learning*. Calgary, AB: University of Calgary. https://ucalgary.ca/sites/default/files/teams/435/EquitablePathwaystoEL_December2022.pdf

Tam, A., Dapaah, A., & Mills, F., (2023). Seeing Change from a Sea change? AI, Student Resumes, and Lessons Learned. Presentation at CEWIL Canada 2023 Conference. Halifax, NS.

Trent University (2023). Preparing Co-op Students for an AI-Driven Future. <https://www.trentu.ca/news/story/36953>

Universities Canada (2016). University and college students should have access to work-integrated learning. <https://www.univcan.ca/media-room/media-releases/university-college-students- access-work-integrated-learning/>

University of Waterloo (n.d.). Take a AAA Approach to Work-Integrated Learning. https://uwaterloo.ca/aaa-approach-work-integrated-learning/sites/ca.aaa-approach-workintegratedlearning/files/uploads/files/c018437_blitz_campaign_white_paper_2_edit_print2_accessible_final-june_1.pdf

University of Waterloo (2019). Economic Impact Assessment. <https://uwaterloo.ca/about/sites/default/files/uploads/documents/economic-impact-report-2019-accessible.pdf>

Vélez, S., & Giner, G. (2015). Effects of business internships on students, employers, and higher education institutions: A systematic review. *Journal of employment counseling*, 52(3), 121- 130.

Walters, D., & Zarifa, D. (2008). Earnings and employment outcomes for male and female postsecondary graduates of coop and non-coop programmes. *Journal of Vocational Education and Training*, 60(4), 377-399.

Wang, Y., Kitterlin-Lynch, M., & Williams, J. (2018). Hospitality cooperative education: What are the benefits for industry partners? *Journal of Hospitality & Tourism Education*, 30(2), 127-133.

Weingarten, H. (2016). *Experiential education: Let there be evidence*. Toronto, ON:HEQCO. <https://heqco.ca/harvey-p-weingarten-experiential-education-let-there-be-evidence/>

Winchester-Seeto, T. (2019). *Quality and Standards for Work Integrated Learning*. Canberra, AU: Australian Government Department of Education and Training.

Winchester-Seeto, T., & Rowe, A. D. (2023). Preparing students to thrive in work-integrated learning. In *The Routledge International Handbook of Work-Integrated Learning* (pp. 441- 459). Routledge.

Wyonch, R. (2020). *Work-ready graduates: The role of co-op programs in labour market success*. Toronto, ON: CD Howe Institute.

Yorio, P. L., & Ye, F. (2012). A meta-analysis on the effects of service-learning on the social, personal, and cognitive outcomes of learning. *Academy of management learning & education*, 11(1), 9-27.

Yue, H., & Hart, S. M. (2017). Service-Learning and Graduation: Evidence from EventHistory Analysis. *Michigan Journal of Community Service Learning*, 23(2), 24-41.

Zegwaard, K. E., Johansson, K., Kay, J., McRae, N., Ferns, S., & Hoskyn, K. (2019). Professional development needs of the international work-integrated learning community. *International Journal of Work-Integrated Learning*, 20(2), 201-217.

Zegwaard, K. E., & McCurdy, S. (2014). The influence of work-integrated learning on motivation to undertake graduate studies. *Asia-Pacific Journal of Cooperative Education*, 15(1), 13- 28.

Zegwaard, K. E., & Pretti, T. J. (2023). Contemporary challenges and diverse practices of work- integrated learning in higher education. In *The Routledge International Handbook of Work- Integrated Learning* (pp. 3-12). Routledge.

Zegwaard, K. E., Pretti, T. J., Rowe, A. D., & Ferns, S. J. (2023). Defining work-integrated learning. In *The Routledge International Handbook of Work-Integrated Learning* (pp.29- 48). Routledge.



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