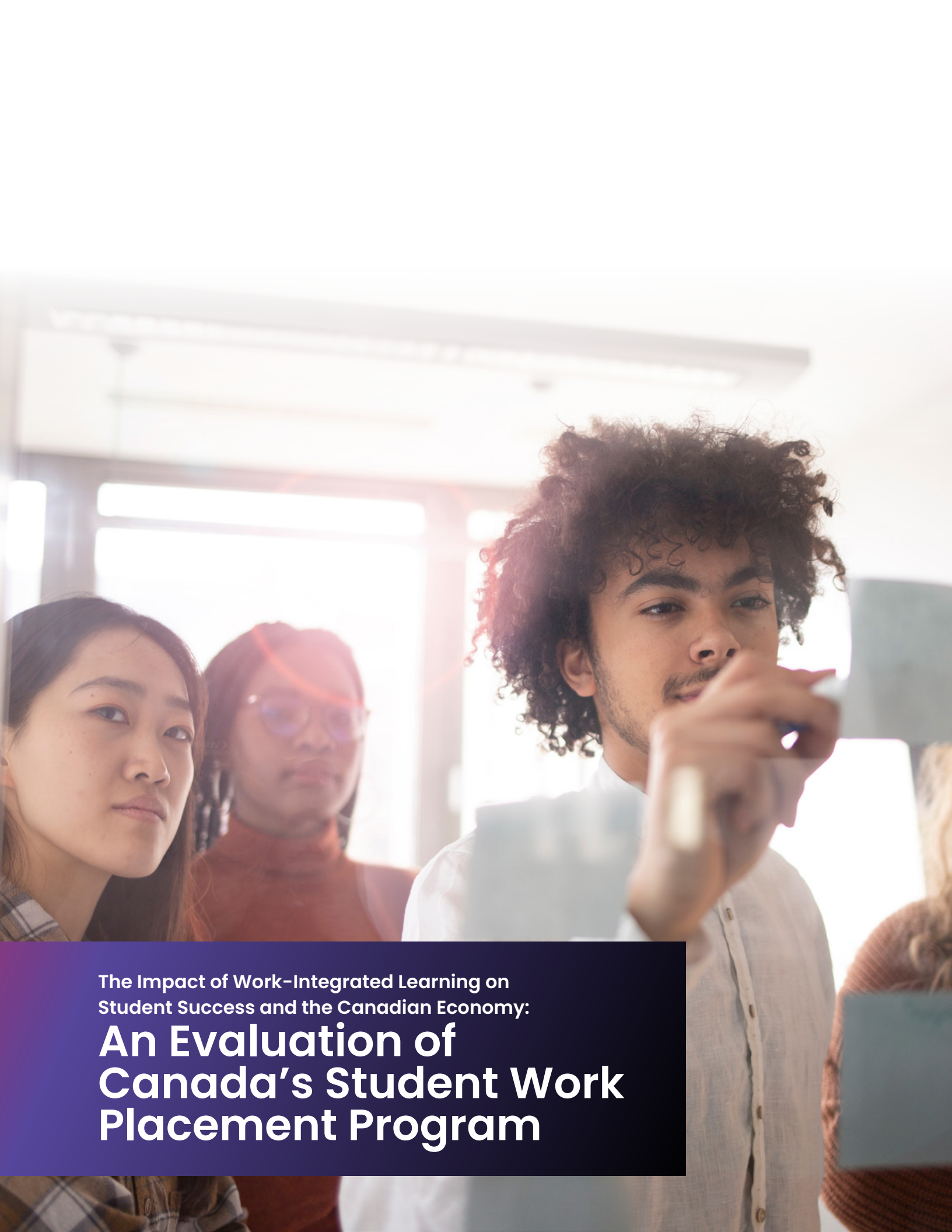

The Impact of Work-Integrated Learning on Student Success and the Canadian Economy:

An Evaluation of Canada's Student Work Placement Program

Research by

ICTC CTIC

Information and Communications Technology Council

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Foreword

The Student Work Placement Program (SWPP) has made essential contributions to Canadian workforce development since its launch in 2017. With Canada's high proportion of university and college graduates, high-quality work-integrated learning (WIL) ensures that youth can apply their post-secondary knowledge in real workplaces, build transferable skills, and contribute to the Canadian economy upon graduation. Students walk away more confident than their non-SWPP peers in their ability to find work after they graduate, and with higher self-assessments of soft skills such as collaboration, adaptability, creativity, and innovation.

In addition, Canadian businesses have faced novel challenges since the COVID-19 pandemic, and the SWPP's employer wage subsidies have offered an important lifeline. Numerous small businesses that would have not otherwise been able to hire a student and invest in talent development have done so and seen high returns in their workplaces. For employers, the SWPP helps fulfil short-term labour needs and evaluate students' appropriateness for future long-term employment. Accordingly, the SWPP allows employers to make crucial connections to new graduates, develop talent relevant to workplace needs, and hire new workers into full-time roles once they have fully entered the labour market.

Beyond the SWPP's immediate participants, the program also provides value to Canadians more broadly. Direct benefits include an increased tax base and spending, new business activity, and productivity, while indirect benefits include the positive social spillovers of graduate employability, supporting equity-deserving communities in lucrative fields like STEM, and more resilient small businesses and Canadian employers.

SWPP delivery partners have witnessed first-hand the positive impact this program has had on participants, both students and employers, but the content in this report offers additional evidence that SWPP's social and economic impact outpaces its cost. The SWPP is truly a flagship program for Canada: it creates opportunities for paid, meaningful work, generates value for employers, and offers access to new sectors for resilient young talent.

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Preface

The Information and Communications Technology Council (ICTC) is a not-for-profit, national centre of expertise for strengthening Canada's digital advantage in a global economy. Through trusted research, practical policy advice, and creative capacity-building programs, ICTC fosters globally competitive Canadian industries enabled by innovative and diverse digital talent. In partnership with an expansive network of industry leaders, academic partners, and policymakers from across Canada, ICTC has empowered a robust and inclusive digital economy for over 30 years.

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Researched and written Alexandra Cutean (Chief Research Officer, ICTC), Faun Rice (Manager, Research & Knowledge Mobilization, ICTC), and guest researcher Letitia Henville, with support from Ron Samson (Senior Manager, Research & Evaluation, Magnet), and Dorota Sendorek (Senior Data Analyst, Magnet).

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Executive Summary

Work-Integrated Learning (WIL) is an essential tool in workforce development around the world. Participating in WIL has been shown to be associated with higher grades, students being better prepared for career success, better informed about their chosen careers, and improved self-efficacy and adaptability. Existing literature shows that high-quality WIL experiences contribute positively to students' studies, work, and lives. WIL seems to provide all participating students with information about their proposed careers, allowing them to make more informed decisions about whether a target job is the right one for them. However, studies that investigate the experiences of students from equity-deserving groups note that if WIL does not follow best practices for equity, accessibility, inclusion, and anti-racism, this can contribute to a sense of not belonging to their chosen profession or industry. However executed well, WIL can help all students develop work readiness in core skill sets and career planning.

This study evaluates Canada's Student Work Placement Program (SWPP) through four surveys, including a survey of SWPP students and SWPP employers, as well as "control" surveys of students and employers who have (a) participated in a form of WIL other than the SWPP or (b) not participated in WIL at all. The following findings are key takeaways from these surveys.

The SWPP provides direct and indirect economic benefits to Canadians. Together, these offer a strong return on investment, outstripping taxpayer investment in the program. Direct economic benefits include expanded tax bases, increased spending in the economy, increased economic investments, and increased workplace productivity. Indirect economic impacts include improved educational experience, increased employability of new graduates, and improved training capacity for employers.

By offsetting hiring costs, the SWPP provides a strong incentive for employers to engage with students in work-integrated learning experiences. Employers in the treatment sample report that, on average, **each SWPP student creates $401 in additional value per month. The total benefit to employers in the treatment sample is $339,647 per month or approximately $1.36M per placement period. According to program data from Orbis, since April 2022, 8,311 employers have participated in the SWPP program, yielding a net benefit of $3.33M per month or approximately $13.33M per placement period.**

Likewise, students gain financial benefits from the SWPP, which often exceed the income they would have received in their next-best alternative. **On average, students in the treatment sample report an additional financial benefit of $1,038 per month by participating in the SWPP. The total benefit to students in the treatment sample is $1.91M per month or $7.66M per placement period. According to program data from Orbis, since April 2022, 20,254 students have participated in the SWPP program, yielding a benefit of $21.02M per month or approximately $84.09M per placement period.**

However, the **SWPP can benefit from greater prioritization of gender pay equity.** Treatment sample data shows that across nearly all study areas, women tended to have lower salary asks than men and often received wages close to their asks. Men not only had higher asks but often received more than their minimum. Salary transparency in job postings, for example, may close the "ask gap" and ensure equitable wages for all genders.

Considering medium-term economic benefits, **SWPP students expect to earn higher wages when entering the job market full-time. This is compared to students that participated in other WIL programs and those that did not participate in WIL.** By 2027, SWPP students expect to earn $11,000 more per year than their counterparts that participated in other WIL programs.

In terms of program features and execution, the **SWPP plays an essential role in ensuring that students are paid for meaningful work experiences.** Only one in five (21%) of students who had not participated in the SWPP but had participated in another form of WIL (n = 995) were paid for their WIL experience. Across the board, surveyed employers identified increased time by managers and team members to train and supervise WIL students as the biggest barrier to WIL or SWPP participation. **Only a quarter (24%) of SWPP employers would still have hired their SWPP students if they hadn't received a subsidy to support the cost of their students' salaries.**

The number one benefit for SWPP and other WIL students of participating in these programs is gaining practical work experience—and high-quality WIL also extends students' academic knowledge. Interestingly, improving academic performance is a low priority for participating in WIL for both groups. As aligned with other literature on WIL outcomes, students may not always see clear connections between WIL and their studies. A total of 88 employers who participated in the SWPP allowed students to participate in optional micro-credentials as part of students' placements: 64% of these felt that the credentials had provided students with foundational or "soft" skills relevant to students' educational programs. If students are primarily gaining foundational rather than technical skills from micro-credentials and WIL experiences, a direct connection to studies may be present but less obvious.

Informal recruitment channels may merit attention in order to ensure that SWPP students can access roles equitably. An insufficient number of positions available for WIL students was the second most common barrier to SWPP participation, followed by the need to delay graduation to complete a SWPP program. Meanwhile, over a third of employers recruiting SWPP students (36%) use their personal connections and network. The SWPP nevertheless seems to be promoting diverse workforce development in industries across Canada: 71% of SWPP employers reported hiring WIL participants who belong to equity-deserving communities underrepresented in their sector, and many employers also have made positive changes to workplace structures to be more inclusive as a result (for example, 21% of SWPP employers reported making changes to mentorship or supervisory structures; 12% to recognize new holidays or traditions in the workplace; 11% plan to implement workplace cultural safety training; and 10% plan to create new workplace accommodations).

SWPP students show greater levels of confidence in finding meaningful work than other WIL and non-WIL students. SWPP students are 10% more likely to feel confident that they will find a job in their field after graduating, 20% more likely to believe that working during school is an important supplement to their education, and 9% more likely to report enjoying the education/training program than other WIL students surveyed in this study.

SWPP students show higher confidence in "soft" or transferable skills than other WIL and non-WIL students. SWPP students are 10% more likely to report high comfort with communication, 13% with creativity and innovation, 4% with reading, 10% with collaboration, and 11% with adaptability than other WIL students surveyed in this study. Increasingly, employers look for candidates with strong technical skills and "soft" skills—students with a more robust and balanced skill set may be more attractive in the labour market and less likely to suffer unemployment or underemployment.

Across sectors, filling short-term labour needs and evaluating students for future long-term employment were the most highly rated positive outcomes of the SWPP for employers. **About half (48%) of employers had hired a SWPP or WIL student after graduation into full-time work.**

In sum, the SWPP creates opportunities for students to be paid for meaningful work and brings value to employers and the Canadian economy. Without SWPP subsidies, it is likely that far fewer employers would participate in WIL and paid WIL in particular. SWPP experiences allow students to make educated decisions about their career paths, build transferable skills, and find jobs after graduation. Improvements to the SWPP program might include further attention to equity (in recruitment and implementation) and stronger opportunities for students to reflect on connections between their SWPP placements and academic programs.

Introduction

Work-integrated learning is a form of experience-based education that, according to CEWIL Canada, "formally integrates a student's academic studies with quality experiences within a workplace or practice setting" (Co-operative Education and Work-Integrated Learning [CEWIL] Canada, n.d.). According to researchers at the University of Waterloo's Work-Learn Institute, high-quality WIL addresses the goals of all stakeholders and includes "(1) meaningful experience in a workplace setting; (2) curricular integration of workplace learning and academic learning; (3) student outcomes that lead to employability; and (4) reflection" (McRae et al., 2018, p. 6). That is, there's a difference between a student job and a WIL position: WIL is work that emphasizes both learning and integration with a student's academic program.

Although CEWIL Canada recognizes nine distinct types of WIL—including, for example, trainee-nurse practicums, course-based service learning, and entrepreneurship (CEWIL Canada, n.d.)—this report focuses specifically on the Canadian Student Work Placement Program (SWPP), an Employment and Social Development Canada initiative that incentivizes employers to offer WIL placements. Under this initiative, students work for an employer in a short-term role (typically four months). Employers receive a 50-70% (to a maximum of $5,000 - $7,000) wage subsidy per student per semester. The SWPP program is administered by a number of delivery partners. Each focuses on forming employer-student partnerships in a specific sector or sub-sector while providing relevant support and, in some cases, training. When launched, the SWPP was focused on students in STEM (science, technology, engineering, and mathematics), and business. Since 2019, it has broadened to accept post-secondary students from all disciplines (Employment and Social Development Canada, 2022).

The SWPP program is explicitly designed to create and accelerate learning opportunities for students by incentivizing employers to hire students by offsetting their financial risk. The program also serves to build stronger partnerships and connections between industry, employers, and post-secondary institutions. While the SWPP has created thousands of new opportunities for students and employers across the country, and Employment and Social Development Canada recently published an evaluation of the SWPP (2022), there is little evidence comparing SWPP's impact on students and employers with data for students and employers who have taken part in other types of WIL in Canada. Comparing the SWPP to other WIL is an essential test of the program's contribution to Canadian talent development, in addition to understanding the economic impact of the program. This study seeks to fill that important gap.

This evaluation adopts a "treatment" and "control" design, where post-secondary students in Canada and Canadian employers were divided into two groups: those who had participated in the SWPP (the treatment groups) and those who had not (control). Surveys for the treatment groups were distributed by the following eight SWPP delivery partners: the Information and Communications Technology Council (ICTC), Magnet (at Toronto Metropolitan University) with partners BioTalent Canada, ECO Canada, Electricity Human Resources Canada (EHRC), Excellence in Manufacturing Consortium (EMC), Ontario Chamber of Commerce (OCC), and TECHNATION. Control surveys were distributed by a large Canadian survey vendor. For comparisons between treatment and control, results control for the impact of variables like major, see Appendix D for full methodology. Throughout this report, survey results are referred to as "SWPP Students" (student treatment group, n = 1844) and "Non-SWPP Students" (student control group, n = 1656); "SWPP Employers (employer treatment group, n = 847) and "Non-SWPP Employers" (employer control group, n = 846). Within both "control" groups, many respondents had participated in forms of WIL other than the SWPP. Through this study, either the whole control group or a non-SWPP WIL control group is used for comparison, and the difference is specified where it occurs.

Section I presents existing findings on outcomes of high-quality WIL, including an existing Canadian evaluation of the SWPP. Researchers in Canada, the United States, the United Kingdom, Australia, and New Zealand have identified that WIL has a direct impact on students' academic performance and experience in academia, on their employability and readiness for work, and on their skills and characteristics. Section I describes these impacts, with illustrative examples drawn from the research literature.

Section II introduces the surveys conducted as part of this evaluation. It includes demographics and firmographics, differences between the control and treatment samples, and a look at what other types of WIL non-SWPP respondents had participated in. Next, it goes over recruitment, barriers to entry, and outcomes of WIL for students and employers alike.

Section III describes the economic impact of the SWPP. It includes an overview of economic outputs and outcomes associated with the program and showcases its value for both employers and students. The economic impact is described according to the following: near-term direct economic impact and medium-term direct and indirect economic impact.

Section I: Existing Data on WIL Outcomes

This examination of the outcomes of Canada's SWPP program builds on existing evaluations of WIL around the world. Through a review of literature from 2010 forward, and with a focus on North America, Section I walks through existing findings on WIL outcomes (see Appendix D for review methodology). It begins with a focus on the relationship between WIL and academic performance before moving to WIL's impact on workplace readiness, career choices, and finally skills as well as qualities like self-efficacy and adaptability.

Impact of WIL on Students' Academic Performance and Experience of Academia

Several existing studies have assessed the impact of WIL participation on students' academic performance or experience of post-secondary education. Those summarized here focused exclusively on students pursuing undergraduate degrees, even though intern and co-op programs are increasingly offered in master's and doctoral programs in Canada and internationally. Details of the disciplines and types of WIL associated with these findings are provided in Appendix A.

Across a range of disciplines, existing research has found the following positive association between WIL programs and academic variables:

1. Students who participate in a co-op **change their majors less often** than those who do not participate in a co-op (Drysdale et al., 2015);
2. Students who participate in a co-op are **more likely to graduate** than students who do not (Ramirez et al., 2015), and those who complete their studies have, on average, completed more co-op work terms than those who did not graduate (Raelin et al., 2014);
3. Students who participate in WIL have a **higher GPA** than those who do not (Drysdale & McBeath, 2018; Parker et al., 2016; Raelin et al., 2014; Ramirez et al., 2015);
4. Students who participate in a co-op **are less worried about their studies** than those who do not (Drysdale & McBeath, 2014; Purdie et al., 2013);
5. Students who participate in WIL are **more satisfied with their degrees** than those who do not (MacDonald et al., 2014);
6. Students who participate in WIL are **more likely to interact with their instructors** outside the classroom than those who do not (Adamczyk et al., 2022);

7. Students who participate in a co-op are **more likely to be intrinsically motivated** and to use effective, deep learning strategies than those who do not (Drysdale & McBeath, 2018); and,

8. The academic benefits of participating in WIL appear to be **amplified for students from equity-deserving groups**; that is, students of colour, female students, and students who enter post-secondary with low levels of academic achievement appear to receive the greatest academic benefits from participating in WIL (Bell et al., 2021; Drysdale & McBeath, 2014; Parker et al., 2016; Ramirez et al., 2015; Samuelson & Litzler, 2013).

However, participating in WIL also has some neutral and negative impacts on students' academic experience. Notably, students who have participated in a co-op have reported "a reduction in the quality of instruction" upon return to their studies (Raelin et al., 2014, p. 609). To explain this finding, Raelin and colleagues (2014) suggest the following:

> This outcome reflects a possible mismatch of expectations between the returning student and the classroom instructor. Some instructors may not take advantage of their students' newfound knowledge and maturity to enhance students' classroom experience. Such students fresh from co-ops may be able to update some engineering applications [… but] they cannot demonstrate their new knowledge because their instructors control the agenda of learning. (p. 617, 609)

Raelin and colleagues' findings thus align with those of Sattler and Peters, whose study of Ontario graduates found that graduates identified as a challenge "not enough opportunities to share what I learned [in WIL] when I went back to the classroom" (2013, p. 53). That students may be dissatisfied with their in-class learning after a WIL experience, however, is not an argument against WIL; rather, it is an argument for increased collaboration between university instructors and industry partners.

Given that some WIL students report a reduction in instructional quality after returning to their undergraduate studies, it is perhaps surprising that many students draw on their WIL experiences when deciding if they should pursue a master's or doctoral degree (Chen, Hora, Wu, et al., 2020). In a small study of 18 alumni, 12 of whom had completed at least one co-op work term, researchers found that "all 12 co-op participants indicated that the work placement had at least some influence, and eight indicated a strong influence, on their decision to do graduate studies" (p. 16). WIL is thus "a source of motivation to carry on to do further studies" (p. 24) that helps to "contextualize and refine their […] study ambitions" (p. 25).

The above-described findings may, however, be less generalizable than the studies sometimes suggest, given that STEM students participate in WIL at higher rates than students in other disciplines: "Students in STEM programs, as well as health science programs, were more likely to participate in WIL than students in the social sciences, while arts and humanities students were less likely than social science students to participate in WIL" (Sattler & Peters 2012, p. 40). The only consistent findings in studies from different disciplines were those that demonstrated students who engage in WIL have, on average, higher grades than students who don't participate in WIL. This finding has been identified in WIL research in disciplines as varied as engineering (Drysdale & McBeath, 2018; Raelin et al., 2014; Ramirez et al., 2015), the liberal arts (Drysdale & McBeath, 2018; Parker et al., 2016), and applied health studies, environment studies, mathematics, and science (Drysdale & McBeath, 2018). Because the structure of academic publishing disincentivizes attempts to validate the findings of a prior piece of research, and because of a dearth of research on the academic impacts of participating in WIL across disciplines, it is not possible to definitively state which of the above-described findings hold true across fields of study, regions, or a wide range of student populations; that is, they are *suggestive* rather than *definitive*.

Finally, although the academic benefits of participating in WIL appear to have the strongest effect on students from equity-deserving groups, other research suggests that the employment outcomes of participating in WIL are less pronounced for students from these populations. For example, "women, unfortunately, tend to receive lower benefits than men from participating in co-op programs in terms of income, getting a first job related to their field of study, or securing a permanent position" (Wyonch, 2020, p. 18). The next section turns to this discussion.

Impact of WIL on Students' Employability and Readiness for Work

Employability and workforce readiness are major themes in existing evaluations of WIL. The studies summarized are listed in Appendix B and include details on the country in which the study took place, the students' disciplines, and the type of WIL examined.

A number of these studies reinforce findings that have already been established in the field of WIL research. For example, researchers have demonstrated that participating in WIL leads to an increase in earnings after graduation (Gault et al., 2010; Jackson & Rowe, 2022; Wolniak & Engberg, 2019; Wyonch, 2020), more job interviews (Baert et al., 2021) and job offers (Gault et al., 2010; Rigsby et al., 2013), and reduced unemployment (Jackson & Collings, 2018; Jackson & Rowe, 2022; Helyer & Lee, 2014). These findings align with research published about WIL prior to 2010 (when this study's literature review began).

But participating in WIL does more than simply help students get jobs: it also eases the transition from post-secondary education to employment by increasing students' career readiness.

1. Across a range of disciplines, students report that participating in WIL enables them **to develop the qualities, workplace knowledge, and mindset necessary for successful careers after graduation** (Bowen, 2018; Burford et al., 2020; Caldicott, 2020; Dietz, 2022; Drysdale & McBeath, 2012; Durham et al., 2020; Jackson, 2013; Jackson, 2017b; Jackson & Dean, 2022; Kilpatrick, 2019; MacDonald et al., 2014; Pretti et al., 2020; Rothman & Sisman, 2016; Thompson et al., 2021; Tiessen et al., 2018).

Multiple studies described students reporting that they have developed as professionals because of their WIL experience. For example, Kilpatrick (2019) found that engineering and business students who had participated in WIL had an increased understanding of "acceptable social norms in the professional world" (p. 267; see also Bowen, 2018). Jackson and Dean (2022) found that WIL "can positively influence graduates' perceptions of their own work-readiness and employability" (p. 15; see also Martin & Rouleau, 2020); in parallel, Tiessen and colleagues (2018) found that alumni who didn't participate in an internship or co-op later identified these WIL experiences as important to starting a career in a competitive field. Similarly, MacDonald and colleagues (2014) found that business students in Australia who chose to participate in paid internships started their degrees with lower scores on a measure of professional identity (i.e., capabilities associated with the responsibilities, duties, and standards associated with a profession) than those who did not participate in WIL but ended their degrees with higher scores on this same measure. In line with McRae and colleagues' (2018) *Work-integrated learning quality framework, AAA**, MacDonald and colleagues highlight the importance of pre-work preparation and post-work reflection to achieve these outcomes.

Indeed, the mindset and development that WIL can foster in students is not necessarily attached to a single professional identity. In their small study of recent university alumni who had participated in WIL and are now entrepreneurs, Pretti and colleagues (2020) found that participating in co-op and internships—even those not specifically linked to entrepreneurship—can foster resilience and an "entrepreneurial orientation" (p. 462). These authors conclude that participation in WIL "provides many benefits toward [students'] personal growth and career development" in general, whether or not that development is linked to an identity as a professional within a specific industry (p. 465).

Some studies, however, complicate the idea that WIL needs to be paid to foster these employment mindsets. Among tourism studies students participating in both paid and unpaid internships, Caldicott (2020) reports that those who had good relationships with their supervisors developed their identities as emerging professionals; her study does not identify pay as a contributing factor to the development of a professional identity. Jackson (2013) found that health studies students—that is, students who pursue a discipline in which unpaid practicums are conventional—still reported developing professionalism. Durham and colleagues (2020) demonstrate that an unpaid industry-engaged research project, completed as a capstone course for Master's in Public Health students, was the part of their degree that students rated most highly as the "factor assisting them to obtain relevant employment" (p. 11). These findings suggest that unpaid WIL may have many of the same valuable employment-related outcomes as paid WIL. Such findings are contested, as Adamczyk and colleagues (2022) summarize:

Compared with non-internship students or those with paid internships, studies have found that students who complete unpaid internships have more challenges in seeking employment and lower satisfaction with their internship (Crain 2016; Perlin, 2012; Waxman, 2018).... A 2016 report by the NACE Foundation, Crain (2016)... found that compared to students who completed a paid internship, unpaid interns were 10% less likely to rate their experience as "extremely beneficial," and six months after obtaining their degrees, they were more likely to still be seeking employment. Several other studies have found similar differences between paid and unpaid internships (Perlin, 2012; Waxman, 2018). (p. 433, 435–6)

Even if unpaid WIL were to provide the same employment-related benefits as paid WIL, as Sattler and Peters (2013) note, alumni from Ontario universities have reported that the biggest barrier to participating in WIL is lack of payment. So, while unpaid WIL may still foster good employment outcomes, it may also exacerbate inequities across socioeconomic groups, as only the students who can afford to engage in unpaid WIL can garner its employment-related benefits.

2. Employers describe students who have participated in WIL as **better prepared for success in employment** than students who have not pursued WIL (Camacho, 2019; Drewery et al., 2020; Employment and Social Development Canada, 2022; Gault et al., 2010; Sattler & Peters, 2013).

Students who have participated in WIL perceive that they are cultivating the understanding necessary for workplace success, and their employers agree. Camacho's detailed comparison of business co-op students' self-assessments and their employers' assessments found a close alignment between these assessments. While students tended to give themselves slightly higher average scores than did their employers, these differences were small: for instance, when assessing their own ability to "uphold ethical standards in the workplace," students gave themselves an average score of 4.62 out of 5.00, while their employers gave them an average score of 4.52 out of 5.00. By the time students were in their final co-op work term, employers described them as having "developed skills essential to their careers and industry" (p. 74).

Camacho (2019) is not alone in finding that employers describe students who have completed WIL as more ready for work than students who have not. Gault and colleagues (2010) likewise found that employers affirmed students' self-perceptions and felt that business students who had completed an internship were "better prepared [for their careers] and more marketable" than students who had not (p. 86). Drewery and colleagues (2020) likewise found that employers felt that "WIL prepared students for […] success in the workplace" (p. 281). Employers' perceptions appear to translate into labour market decisions: in their 2022 review of the Student Work Placement Program, Employment and Social Development Canada found that 73% of employers who hired SWPP students would consider hiring them long-term.

Sattler and Peters (2012) identify a potential flaw in studies of employers' perceptions, noting that employers who hire WIL students are more likely to find WIL valuable than employers who do not hire WIL students. Employers who do not hire WIL students still ranked "relevant work experience" as an important hiring factor but were less impressed by "co-ops, placements, internships, etc., with other businesses or organizations" than employers who had hired WIL students (p. 34). Studies such as those by Camacho (2019) and Gault and colleagues (2010) tend to focus on employers with experience of WIL because those are the employers with whom university researchers have established connections. It is possible that, after supervising an intern or co-op student for some months, an employer may be more inclined to claim that a student is work-ready.

3. Participation in WIL can **impact the career readiness of students from equity-deserving groups differently** from the way it impacts students with privilege (Bell et al., 2021; Dietz, 2022; Drysdale et al., 2020; Jackson & Bridgstock, 2021; Kilpatrick, 2019; Parker et al., 2016; Samuelson & Litzler, 2013; Smith et al., 2019; Thompson et al., 2021).

While the above studies focused on large populations of students generally, some key studies look specifically at the career readiness outcomes associated with WIL participation for students from equity-deserving groups. Such findings are often more nuanced and harder to generalize than studies that do not differentiate between student demographic groups. For example, in her studies of the WIL experiences of Black engineers, Dietz (2022) found that "engineering identity can be supported within internships through creating a sense of belonging, providing meaningful work, broadening understanding of what engineering is, and showcasing what engineering careers can entail to fuel future aspirations" (p. 145) – but only in workplaces in which students are "supported and encouraged to be [their] authentic sel[ves]" (p. 148). WIL can foster the sense of professional belonging that "is crucial for [professional] identity development" (p. 146), but Dietz (2022) demonstrates that workplaces that do not follow inclusive, antiracist practices can fail to foster this professional belonging and thus fail to support young Black engineering students in developing their professional identities.

Kirkpatrick (2019) shares the story of a female engineering student who was "unfairly treated" and who "saw other female co-op students treated differently based on their gender" and perceived "that male students were often given preferential projects or assignments as a result" (p. 107). Female students who reported a good working relationship with a mentor were able to foster a strong sense of professional belonging despite facing such workplace discrimination (Kirkpatrick, 2019; see also Samuelson & Litzler, 2013). Thompson and colleagues (2021) likewise found that "access to supportive mentors also was a key source of professional development" for Black students who took part in internships (p. 598).

Finally, Drysdale and colleagues (2020) have found that LGBTQ+ students who participate in WIL "have [a] significantly lower sense of belonging than their exclusively heterosexual peers in WIL" (p. 189) and that participation in WIL exacerbated the gap in the sense of belonging between queer and straight students. The authors close with a recommendation that "WIL workplaces establish groups for sexual minority employees that operate to promote support and connection among workers" to foster mentoring relationships and, ultimately, inclusion (p. 190).

Such nuanced findings align with findings from Australia by Smith and colleagues (2019), which showed that "the quality of the [WIL] experience" is more important to "the development of students' employability skills" than "either structure (part-time/full-time) or duration (number of weeks)" (p. 26; see also Jackson & Bridgstock, 2021).

For Smith and colleagues (2019), quality can be measured by quantifying the following:

- *Authenticity* of the work done during placement
- *Preparation* for placement both academically and personally
- *Debrief* after placement (or placement episodes) that focus on learning
- *Supervision* during placement
- A focus on the *integration* of theory and practice through
    - » assessments and
    - » activities in situ (p. 26, emphasis in original)

Given the nuanced findings of researchers who focus on WIL participation among students from equity-deserving groups, considerations of WIL quality may need to be updated to include explicit mention of actions that support inclusion and belonging.

In their study of online WIL experiences, Bell and colleagues (2021) found that "online WIL may be one way of reducing the barriers to WIL experienced by students from" equity-deserving groups (p. 9), including "a woman working/studying in a non-traditional area; having grown up speaking a language other than English (NESB); living in a remote/rural area; living with disability; and being first in family (FiF) to attend university/college" (p. 16). The researchers found that "the total number of gains from online WIL" were higher for students from equity-deserving groups than for students not from these groups (p. 38), even though students from rural and remote areas sometimes had unreliable internet access, and even though—as was visible during the COVID-19 lockdown's remote learning—students from low socioeconomic backgrounds sometimes struggled to find a quiet place to work. Students reported benefiting from "an insider perspective, building a portfolio of work, experience of remote work, developing communication skills, networking, [and] mentoring" (p. 28). Students likewise appreciated being able to pursue WIL without incurring costs related to a commute or relocation, as well as the ability to be flexible as to when they completed their hours; this factor was especially significant given that their WIL experience was unpaid. These findings were consistent across both the United States and Australia, the two countries considered in this study.

Many post-secondary staff who support WIL programs believe that participating in WIL is economically beneficial for students from equity-deserving groups. Indeed, there is some data to support this belief: co-op programs "may play a role in overcoming wage gaps associated with bias" toward students from equity-deserving groups (Wyonch, 2020, p. 1; see also pp. 10–12), although the effect varies among students from different demographic groups and academic disciplines. Those looking to support the employability of students from equity-deserving groups ought to consider both the financial benefits associated with participation in WIL as well as the risks to career readiness associated with workplaces that are not inclusive.

4. Students who participate in WIL either (a) feel more certainty about their chosen career direction or (b) feel less certainty about their chosen career direction (Adamczyk et al., 2022; Drysdale & McBeath, 2012; Employment and Social Development Canada, 2022; Jackson, 2015; Jackson, 2017a; Jackson & Wilton, 2016; Martin & Rees, 2019b; Rothman & Sisman, 2016; Wolinsky-Nahmias & Auerbach, 2022).

Some studies have found that participating in WIL enabled students to feel more confident in their career choices (Jackson, 2015; Martin & Rees, 2019b; Wolinsky-Nahmias & Auerbach, 2022; Zegwaard & McCurdy, 2014). Others, however, have found that students who participate in WIL feel more uncertain about their career direction than those who do not participate in WIL (Adamczyk et al., 2022). Still, other studies have identified both responses within a single student population (Jackson, 2017a).

Why are researchers finding divergent results? Participation in WIL provides "insight into the realities of a profession" (Jackson & Wilton, 2016, p. 281); so, for some students, these insights will affirm existing preferences, while, for others, the insights will complicate their earlier, more superficial conceptions (see also Rothman & Sisman, 2016). As Smith and colleagues (2019) have noted, participation in WIL can have "a 'humbling' effect on participants that causes or requires a recalibration of their self-appraisals of their skill and knowledge levels" (p. 27). As students in a WIL experience reassess their pre-WIL assumptions, they may or may not continue on their chosen career path.

Similarly, Drysdale and McBeath (2012) have found that students who participate in co-op have equal or lower levels of practical knowledge than students who have not participated in co-op, perhaps because—as they rapidly readjust to new work environments or return to their full-time studies—students who participate in co-op experience confusion and may end up "questioning their judgment more than their non-co-op peers" (p. 177). By inference, if students feel more uncertain about their career direction after WIL than before WIL, this feeling may be part of a broader as-yet-unidentified trend of post-WIL destabilization.

Ultimately, whether students feel more or less certain about their career directions after participating in a WIL experience, **researchers agree that students leave WIL positions more knowledgeable about the realities of working in a particular sector, industry, or workplace environment.** Their career decisions are thus based on the experiential evidence they would not otherwise have been able to access. In short, they are better prepared to "make informed decisions about their career choices" (Employment and Social Development Canada, 2022, p. 24)—whether that choice is to stay the course or pivot.

Impact of WIL on Students' Skills, Self-Efficacy, and Adaptability

Research into the impact of WIL on students' skills and characteristics has a long history, going back at least three decades. In many of these early studies, researchers attempted to delineate the technical and interpersonal skills that students developed during WIL and compare the skills that students developed to the ones that employers sought. Some contemporary research has built upon this. For example, the 2022 study by Employment and Social Development Canada found that students reported they improved "work-related skills," including time management, critical thinking, problem solving, and oral communications (p. 23) and that employers saw SWPP students improve in working with others, adaptability, and oral communications (p. 24). Martin and Rees (2019a) have likewise found that students who have engaged in WIL have strong communication, teamwork, and project management skills. Jackson (2013) attempted to map skill development during WIL to a range of disciplinary and demographic characteristics and found, for example, that engineering students gained skills in "analyzing data and using technology" more than health studies students did (p. 112), while students who worked in medium-sized organizations rated themselves "as more able in problem solving" than did students who worked in large organizations (p. 112).

In the past 13 years, though, there have been fewer and fewer "which skills?" studies. Instead, researchers are increasingly looking at the qualities and mindsets that students acquire during WIL experiences. These characteristics are often fundamental preconditions to acquiring, practising, and developing new skills. The studies in this review identified two key characteristics that WIL appears to foster: self-efficacy and adaptability. Studies examining skills and qualities are listed in Appendix C.

1. **Participation in WIL improves students' self-efficacy** (Caldicott, 2020; Camacho, 2019; Dietz, 2022; Drysdale & McBeath, 2014; Drysdale & McBeath, 2018; Edwards, 2014; Jackson, 2015; Jackson, 2017b; Jackson & Wilton, 2016; Kilpatrick, 2019; MacDonald et al., 2014; Martin & Rees, 2019a; Martin & Rees, 2019b; Purdie et al., 2013; Raelin et al., 2014; Reddan, 2016; Samuelson & Litzler, 2013; Zegwaard & McCurdy, 2014).

When you believe that you can act to affect a situation or achieve a goal, you can be described as having self-efficacy. Self-efficacy is a form of self-belief that differs from confidence because you can be confident about a negative outcome. Your level of self-efficacy in a particular context will influence how you act, how you respond to setbacks, and what choices you make. If you have high levels of work self-efficacy, then you might perceive a workplace obstacle as a challenge to be mastered rather than a threat to be avoided.

All studies reviewed in this evaluation found that students who participated in WIL had higher self-efficacy than those who did not. And while some of the research results discussed earlier in this knowledge synthesis—WIL students' high GPAs, for example—may be correlated with rather than caused by participation in WIL, researchers in this subject area are confident that WIL contributes to student self-efficacy. "The results of this research clearly demonstrate the role of work-integrated learning in developing students' perceived work self-efficacy" (Reddan, 2016, p. 432); "the positive impact on students' self-efficacy was a direct result of their experiences during their [WIL] placement, rather than a superficial change merely connected to the fact of having undertaken some work experience" (Edwards, 2014, p. 239). As Purdie and colleagues (2013) conclude, this finding suggests "that WIL has a much wider reaching influence than simply moulding better students; [rather,] the effect is one of a more hopeful and confident adult, perhaps better equipped emotionally to face the challenges of the employment market and life beyond" (p. 123). Such positive belief in one's own agency and abilities can be understood as foundational to many of the other findings in this knowledge synthesis, including career readiness and academic success.

2. **WIL fosters students' adaptability, which is important for a changing future of work** (Drewery et al., 2020; Martin & Rees, 2019a; Pennaforte, 2016; Pretti et al., 2020).

WIL students become practised in shifting contexts as they move between the classroom and the workplace, so it is perhaps unsurprising that a quality associated with students who participate in WIL is adaptability. Pennaforte (2016) has found that "co-op students behave in a more proficient, adaptive, and proactive manner in the workplace" than students who have not participated in co-op (p. 70). Similarly, Martin and Rees (2019a) emphasized that a capacity to change is one of the characteristics necessary for a "t-shaped professional"(i.e., someone that has specialized skills/knowledge in one particular area, and a broader skillset/general knowledge or skills in other areas; these individuals tend to show a willingness to learn and work in cross-functional teams) who has breadth and depth of skills "cultivated through WIL experiences" (p. 373). And Drewery and colleagues (2020) found that adaptability is a trait that employers find highly desirable in future job candidates but could not conclude whether WIL programs sufficiently foster this trait in their students.

Perhaps the most compelling evidence that participation in WIL fosters adaptability comes from Pretti and colleagues' (2020) small study of alumni who had participated in WIL and went on to become entrepreneurs. Through rich qualitative research, Pretti and colleagues (2020) found that entrepreneurs valued qualities such as "seizing opportunities, the ability to 'think outside the box,' being resilient and determined during difficult times, and building relationships and networks… [all of which] allow entrepreneurs to adapt during times of change" (p. 464). While the structure of their study meant that Pretti and her team could not definitively prove that WIL experiences cause students to become more resilient and determined, their research demonstrates that participation in WIL was an important contributor to creating their own employment after graduation.

As both Martin and Rees (2019a) and Pretti and colleagues (2020) emphasize, adaptability seems to be a crucial characteristic in the changing world of work. Martin and Rees (2019a) describe a "chaotic" future of work as "the global economy continues its relentless pace of change with accompanying disruption" (p. 365). Writing in the early months of the COVID-19 pandemic, Pretti and colleagues (2020) emphasize the importance of the ability to "quickly pivot and adapt to uncertain circumstances," whether one is an entrepreneur, a WIL employer, or a member of an academic institution. In our present era of rapidly advancing technology, changing job requirements, and increasing globalization, adaptability will allow workers to stay relevant and competitive. These studies are contributing to a growing body of evidence suggesting that students who participate in WIL are cultivating this crucial quality.

While self-efficacy and adaptability are the two qualities most often discussed in WIL research, some studies identified specific beliefs and characteristics that WIL appears to foster. For example, both Jackson (2017b) and Jackson and Wilton (2016) found that students who participated in WIL demonstrated **high levels of self-awareness**, while Wolinsky-Nahmias and Auerbach (2022) found that students who participated in WIL "came away with greater knowledge of social issues, learned how to work with others, gained a better understanding of their own strengths and weaknesses," and experienced an enhanced "**sense of civic engagement**" (p. 597). While these finds cannot be reduced to measures of academic or career success, they seem nonetheless significant to enriching both students' lives and civil society.

In sum, there are three overarching types of impacts that WIL has: impacts on students' academic performance and experience of academia; impacts on students' employability and readiness for work; and, finally, impacts on students' skills and characteristics. Participating in WIL has been shown to be associated with higher grades, preparing students for career success, informing them about their chosen careers, and increasing their self-efficacy and adaptability. Existing literature shows that high-quality WIL experiences contribute positively to students' studies, work, and lives, while those that investigate the experiences of students from equity-deserving groups note that WIL initiates that do not follow best practices for equity, accessibility, inclusion, and anti-racism can contribute to exclusion and a sense of not belonging in a profession or industry. That is: there are risks associated with WIL, and those responsible for facilitating students' WIL experiences have an obligation to ensure they do this work competently.

The next sections of this study build on existing findings about WIL impacts with a specific focus on the SWPP program in Canada.

Section II: Findings from the Student and Employer Surveys

Students and employers both comprise essential components of WIL delivery: as illustrated in Section I, WIL outcomes depend on strong involvement by both parties. This study examines student and employer experiences of WIL through a set of surveys distributed between December 2022 and February 2023. Section II examines these student and employer surveys to understand the experiences of WIL and the SWPP in Canada. It begins with an overview of each survey's sample before turning to findings from the treatment and control groups for employers and students alike.

About the Surveys: Academic Programs, Demographics, and Geographic Coverage

Both students and employers can be broken up into those who have participated in the SWPP program, those who have not participated in the SWPP but have done some other form of WIL (e.g., internships or other co-op programs), and those who have never taken part in any kind of WIL. These three types of respondents (the SWPP, other WIL, and non-WIL) are compared wherever possible throughout this study.

The Student Surveys

Two surveys were distributed for students: one for SWPP participants ("Treatment") and one for students who had never taken part in the SWPP ("Control": see Table 1). There are several important differences between these two survey samples, aside from their SWPP participation, discussed in this section. Some data in Section II is comprised of unaltered descriptive statistics for both the treatment and control surveys, while other comparison data controls for discrepancies between demographic, geographic, and academic variables. The latter is specified where it occurs.

Table 1: Sample composition of the student control and treatment surveys by WIL participation and region

Students	Control	Treatment	Top Regions
a) SWPP WIL		1844	ON (55%), BC (20%), AB (9%)
b) Non-SWPP WIL	995		ON (39%), QC (27%), BC (12.2%), AB (10%)
c) Non-WIL	661		
Grand Total	1656	1844	

Within the Control group, 60% had participated in a form of WIL, as defined by CEWIL Canada, other than the SWPP. Most commonly, this included some combination of work experience (35%), an internship (28%), a field placement (22%), mandatory professional or clinical practicum (22%), or a co-op program other than the SWPP (22%) (see Table 2: Control as % of non-SWPP WIL). Many had also participated in applied research (16%), apprenticeships (14%), and/or service learning (11%). About half (51%) of the non-SWPP WIL students were required to participate in WIL for their academic program. Furthermore, **of those who had taken part in a non-SWPP form of WIL, only 21% were paid**. Provincial legislation with regard to unpaid internships varies, but broadly speaking, interns in Canada are supposed to be paid at least minimum wage when performing duties similar to typical employees (c.f., Government of Ontario, 2023; Government of Canada, 2023).

Table 2: Types of WIL in Student Surveys

	Control Group Total (n=1656)	Control as % of non-SWPP WIL (n=995)	Treatment (n=1844): WIL Experiences Other than the SWPP
Applied research	9.72%	16.18%	3.85%
Apprenticeship	8.09%	13.47%	0.81%
Cooperative education	13.29%	22.11%	55.31%
Field placement	13.35%	22.21%	2.77%
Internship	16.55%	27.54%	26.08%
Mandatory professional practicum/ Clinical placement	13.29%	22.11%	2.87%
Service learning	6.28%	10.45%	0.81%
Work experience	20.71%	34.47%	16.97%
None of these	39.92%	66.43%	16.38%

In the **Treatment/SWPP student group**, 51% identified as women, 2% as gender non-binary, and 45% as men, while 2% preferred not to specify. In the same group, 1% identified as First Nations, 0.1% as Inuit, and 1% as Métis; 4% as Black; 22% as East Asian, 16% as South Asian, and 7% as Southeast Asian; 5% as Middle Eastern; 1.4% as Latin American; 48% as White European or North American; 3% as having mixed heritage; and 3% preferring not to respond. When asked to estimate total personal income in 2022, most students selected N/A (62%), 20% estimated between $10K-$25K annually, 11% estimated $25K-$50K, and 4% estimated under $10K annually. Over a third (36%) had received federal tuition loans, 44% had received provincial loans, and 46% had received a scholarship. Over half (55%) of respondents had held a full-time job before.

In the **Control/Non-SWPP Student group**, 57% identified as women, 3% as gender non-binary, and 28% as men, while 2% preferred not to specify. In the same group, 5.6% identified as First Nations, 0.2% as Inuit, and 1% as Métis; 7% as Black; 7% as East Asian, 10% as South Asian, and 5% as Southeast Asian; 4% as Middle Eastern; 3% as Latin American; 60% as White North American or European; 2% as having mixed heritage; and 3% preferring not to respond. When asked to estimate total personal income in 2022, most students selected N/A (55%), 13.5% estimated between $10K-$25K, 10% estimated $25-$50K, and 9% estimated under $10K annually. About one in five (22%) had received federal loans, and about a third had received provincial loans (32%) and/or a scholarship (33%). Over half (54%) of respondents had held a full-time job before.

In sum, SWPP participants surveyed included fewer First Nations, Métis, or Inuit participants than non-SWPP, fewer Black students, more East, South, or Southeast Asian students, and fewer women. Furthermore, more students in the SWPP group estimated having annual incomes of at least 10-25k, but more were receiving federal and/or provincial loans or scholarships. See Table 3 for more details. Importantly, these samples cannot be said to be representative of all SWPP participants and Canadian post-secondary students, they simply describe in better detail the self-identification of the students surveyed in this project.

Table 3: Student Sample Demographics

Demographic Self-Identification	Control	Treatment
I am married	17.33%	3.52%
I was born in Canada	70.11%	71.91%
I first arrived in Canada within the last five years	17.09%	4.12%
I identify as a person with a disability	17.03%	6.29%
I identify as neurodivergent	21.56%	11.93%
I am a Canadian citizen	77.60%	93.38%
I identify as a person from the 2SLGBTQQIA community	27.17%	13.45%
Demographic Self-Identification	**Control**	**Treatment**
Asian – East (e.g., Chinese, Japanese, Korean)	7.19%	22.18%
Asian – South (e.g., Indian, Pakistani, Sri Lankan)	10.21%	15.46%
Asian – Southeast (e.g., Malaysian, Filipino, Vietnamese)	4.53%	6.51%
Black – African (e.g., Ghanaian, Kenyan, Somali)	3.62%	2.06%
Black – Caribbean (e.g., Barbadian, Jamaican)	1.57%	0.98%
Black – North American (e.g., Canadian, American)	1.45%	0.60%
First Nations	5.62%	0.70%
Indian – Caribbean (e.g., Guyanese with origins in India)	0.42%	0.81%
Indigenous/Aboriginal not included elsewhere	0.42%	0.43%
Inuit	0.18%	0.11%
Latin American (e.g., Argentinean, Chilean, Salvadorian)	3.20%	1.41%
Métis	1.27%	0.87%
Middle Eastern (e.g., Egyptian, Iranian, Lebanese)	3.74%	4.99%
White – European (e.g., English, Italian, Portuguese, Russian)	18.66%	14.05%
White – North American (e.g., Canadian, American)	41.06%	34.00%
Mixed heritage (e.g., Black – African and White – North American)	2.23%	2.60%
Prefer not to answer	2.78%	2.71%
Do not know	0.42%	0.87%
Other (please specify)	1.45%	1.46%
Estimated Personal Annual Income 2022	**Control**	**Treatment**
0. no income	3.26%	0.92%
1. less than $10K	9.24%	3.80%
2. $10K-25K	13.47%	20.07%
3. $25K-50K	9.84%	11.77%
4. $50K-$75K	5.43%	1.57%
5. $75K-$100K	2.42%	0.16%
6. $100-$150K	1.03%	0.16%
7. $150K+	0.85%	0.05%
N/A	54.47%	61.50%
Student Loan Status	**Control**	**Treatment**
I have received federal loans.	22.40%	36.39%
I have received provincial loans.	32.37%	43.60%
I have received loans from a financial institution.	10.45%	6.02%
I have received a scholarship.	32.85%	45.99%
I have received a bursary.	20.89%	28.15%
I have received financial help from family members.	38.77%	48.92%
I have paid tuition from what I earn working.	31.10%	44.63%
Other (please specify)	2.72%	2.06%
None of the above	10.69%	3.90%

Academically, Control and Treatment survey respondents tended to come from some of the same schools in Ontario and Alberta, but BC schools are better represented in the Treatment/SWPP group, while Quebec schools are better represented in the Control/non-SWPP group.

The Innovator Skills Initiative

In 2021, the Government of British Columbia launched the Innovator Skills Initiative (ISI), which offered employers a grant covering the full salary of a WIL student. ICTC partnered with BC to distribute ISI funding on top of SWPP subsidies to SWPP-eligible students (attending a BC post-secondary institution, living in BC at the time of the placement) and employers (registered in BC, a maximum of 10 placements with ISI funding). Employers placing students from equity-seeking communities underrepresented in their sector received a full subsidy.

Students and employers were able to select a single demographic tag indicating their eligibility for ISI funding. Accordingly, this data does not show intersectional identities (for example, women in STEM who also identified as racialized). Overall, women comprised 38% of the group, and 15% identified as women in STEM. A third (30%) identified as visible minorities, 4% as a person with disabilities, and 2% as Indigenous.

Table 4: Top schools in treatment and control student survey samples.

Top 10 Schools: Control/Non-SWPP Students	Top 10 Schools: Treatment/SWPP Students
University of Toronto / UofT	University of Waterloo
University of Alberta	University of British Columbia / UBC
York University	Simon Fraser University / SFU
UQAM / Université du Québec à Montréal	Toronto Metropolitan University / Toronto MU / Ryerson University
University of Ottawa / uOttawa	University of Toronto / UofT
McGill University	McMaster / McMaster University
University of British Columbia / UBC	University of Calgary
Université de Montréal	University of Victoria
University of Calgary	University of Ottawa / uOttawa
Athabasca / Athabasca University / University of Athabasca	University of Guelph

Students in both groups showed a similar distribution of living in urban, suburban/small town, or rural/remote primary residences. Furthermore, for both control and treatment student groups, the largest number of respondents were in their third year of post-secondary studies and studying full-time. However, there are notable differences between the control and treatment groups academically. First, SWPP student respondents are disproportionately majoring in architecture, engineering, and related technologies, as well as mathematics, computer, and information sciences (see Figure 1).

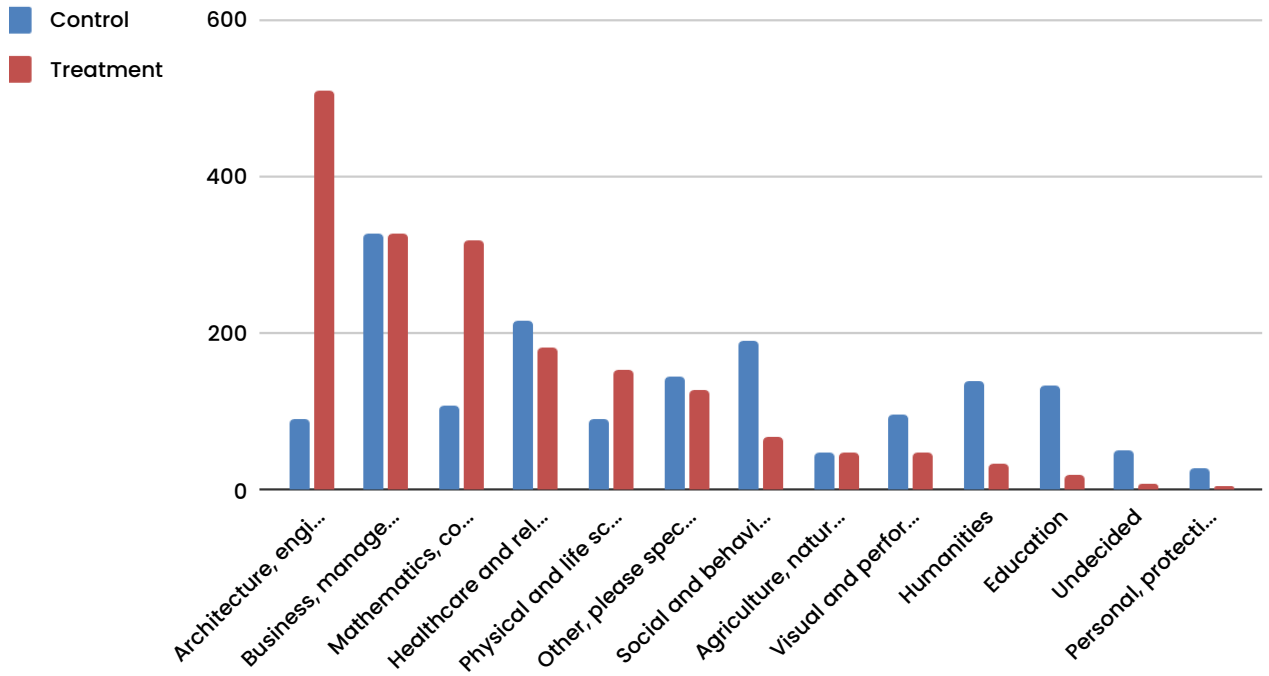

Figure 1: Top majors in the treatent and control student survey samples

Second, there are many more SWPP than non-SWPP students in university programs as compared with college and polytechnic or trade school programs (Figure 2). Both institution type and major are likely to have an impact on student responses. Accordingly, where students in the control and treatment groups are directly compared, results control for academic and demographic variables (see also Appendix D for details).

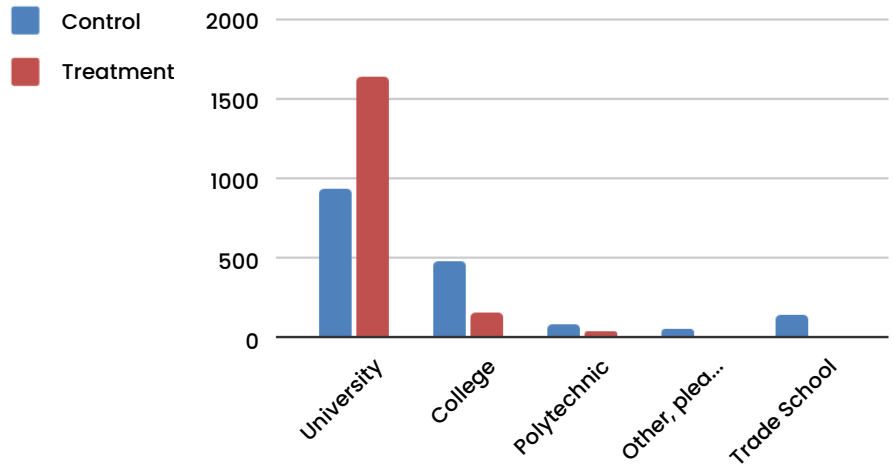

Figure 2: Types of post-secondary institutions by treatment and control student survey samples

The Employer Surveys

Employers were also surveyed in two groups (Table 5). Within the control group, some employers had participated in types of WIL other than the SWPP, and several were unsure whether their organization had done so previously. Employer respondents were Owners/Founders (Control: 34%, Treatment: 25%), Managers (Control: 39%, Treatment: 27%), or other senior employees who either had managed a SWPP student or were in a position to be able to supervise a student. For both employer groups, the most common sector represented was professional, scientific, and technical services (control, 14%; treatment, 25%), followed by Wholesale and retail trade for the control group (12%) and a tie between Manufacturing and Healthcare and Social Assistance for the treatment group (15% each). All other sectors comprised between 0-10% of each sample.

Table 5: Sample composition of the employer control and treatment surveys by WIL participation and region.

Employers	Control	Treatment	Top Regions
a) SWPP WIL		847	ON (48%), BC (24%), QC (10%), AB (8%)
b) Non-SWPP WIL	383		ON (37%), QC (20%), BC (16%), AB (13%)
c) Non-WIL	398		
d) Unsure	65		
Grand Total	846	847	

For employers in the Control group whose organizations had participated in some form of WIL other than the SWPP, types of WIL were most commonly work experience (45%), a non-SWPP co-op (32%), internships (35%), apprenticeships (27%), field placements (21%), practicums or clinical placements (14%), service learning (10%), or applied research (8%). Only 77 (17%) of control group employers participating in WIL other than the SWPP had received a subsidy for their placement.

SWPP and non-SWPP employer respondents fell across a broad distribution of maturity and size. While there were more SWPP employers who had fewer than 10 staff (see Figure 3). there were more control/non-SWPP employer respondents with a total market capitalization of under $100k (Figure 4)

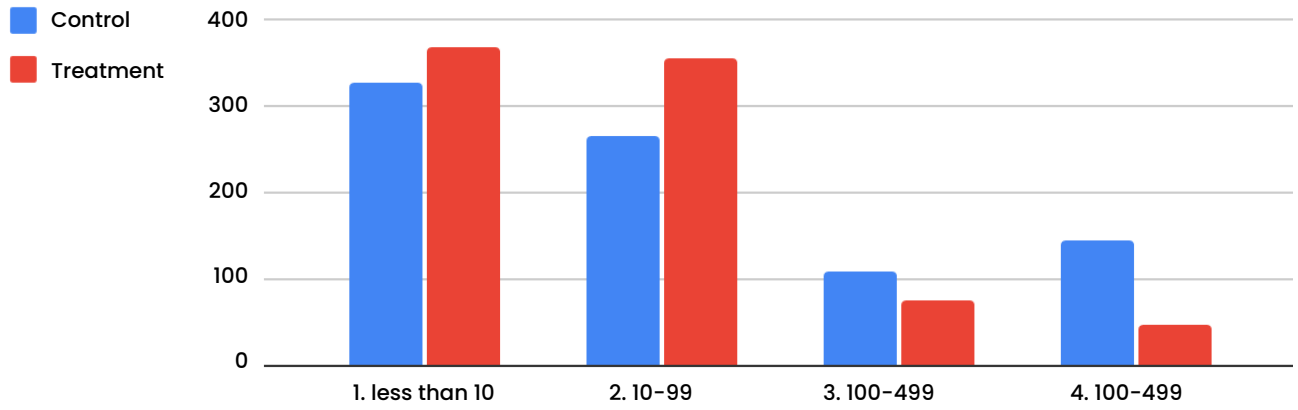

Figure 3: Employers' organization size by number of personnel, treatment and control sample compared

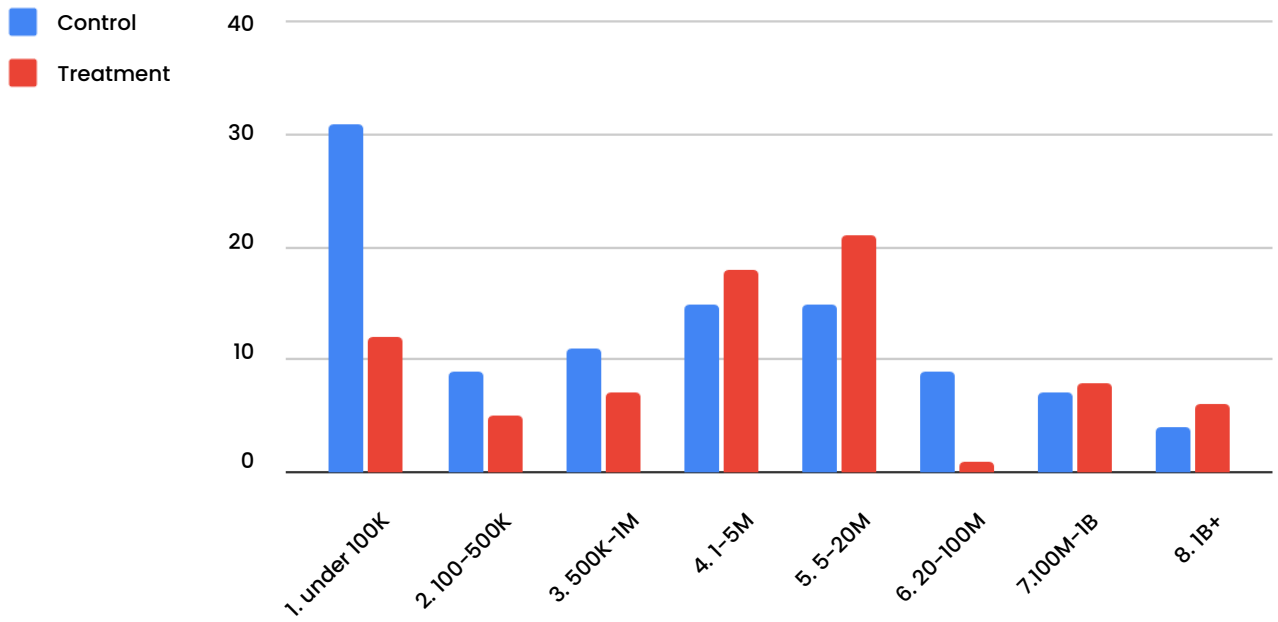

Figure 4: Employers' organization size by market capitalization: treatment and control samples compared.

Barriers to WIL Participation

There are several known barriers to WIL participation. For employers, even if placements are subsidized (as in the case of the SWPP), WIL placements may be seen as costly. WIL placements often require training, supervision, and attention that may be more significant than what is required with employees who already have some workplace experience. Insufficient supervisory capacity has been identified as a key barrier to WIL participation among Canadian employers (Conference Board of Canada, 2021). Similarly, in a survey of Australian employers, insufficient resources and supervision time were identified as the top two barriers to participation in WIL (Department of Industry, 2014). Uncertainty about WIL program structures, options, or functions has also been cited as a barrier to WIL participation (Jackson et al., 2017). There may also be mismatches in terms of what an employer needs and what a WIL student can offer. This may be because students do not possess certain skills or because they are unable to participate in long-term projects (Ibid).

For all types of employers surveyed in this project, the amount of time needed by managers or team members to train and supervise WIL students was the number one barrier to WIL participation. For employers who had never participated in WIL, a lack of relevant work was the second most common barrier. Employers who participated in some type of WIL program other than the SWPP cited the underdevelopment of students' skills as the second most common barrier to participation. SWPP employers expressed different concerns: project cycle/type was the second most common barrier to WIL, followed by the need for greater quality control of WIL student work.

Table 6: Employers' barriers to participating in WIL or the SWPP.

Employers: Barriers to Participating in WIL Programs (select all that apply)	Non-WIL	Other WIL	SWPP ↓
Increased time by manager/team to train and supervise WIL students	47.24%	50.25%	55.49%
Project cycle or project type does not suit a short-term student placement	23.62%	29.50%	33.88%
Increased quality control and greater scrutiny for all work conducted by WIL students	26.13%	28.20%	25.50%
Insufficient number of quality WIL students available	20.10%	26.11%	24.68%
Underdevelopment of required skills	28.644%	33.94%	21.96%
Potential lack of work available for the WIL students	31.41%	25.07%	16.88%
Participation in a WIL program is not a priority	21.61%	19.84%	10.15%
Exposure of intellectual property	15.33%	15.67%	10.04%

Only a **quarter of SWPP employers (24%) would still have hired their SWPP students even if they hadn't received a subsidy to support the cost of a student's salary**. Just under half (46%) would not have hired their student without a subsidy, while 30% were undecided. Comparatively, 42% of control group employers (exempting the 77 who did receive WIL subsidies) would have hired a student from a WIL program if they had received funding to do so. Accordingly, salary subsidies form a crucial part of creating WIL opportunities for students in Canada.

Students also face a variety of barriers to participating in WIL. First, program eligibility requirements preclude some students' participation (international students on student rather than permanent visas are not currently eligible for the SWPP, for example). Second, co-op[1] work terms are often performed during an academic semester, meaning that co-op students often take more than four years to graduate. While work experience is gained, delaying graduation may be seen as a cost to some students. Furthermore, some students avoid WIL because they are unsure of placement quality (Brooks and Youngson, 2016). While the vast majority of employers value student experiences and learning outcomes, some may see WIL as an opportunity to access inexpensive labour to perform basic tasks or may not provide work that is related to a student's program of study. Similarly, students may be uncertain about their ability to secure a placement, in part due to the "supply and demand" challenge, which represents the complexity of ensuring that there are enough students for WIL roles and enough WIL roles for students (Academia Group, 2016).

In this study, cost was the biggest deterrent or barrier to participation for students, particularly for those not in the SWPP. While many WIL programs are paid, students may still need to pay program fees that make a WIL program less immediately lucrative than other work. Secondary deterrents for students who had never taken WIL included having to delay graduation and a challenging workload. For SWPP students, having to delay graduation was the largest barrier to participation, followed by an insufficient number of positions for applicants interested in WIL.

[1] A common form of WIL in which university students work full time rather than attending classes, usually for one or two semesters at a time. These students are typically paid and earn university course credits.

Table 7: Students' barriers to participating in WIL or the SWPP.

Students: Barriers to Participation in WIL (Select All that Apply)	Non-WIL ↓	Other WIL	SWPP
Additional expenses	25%	24%	14%
Having to delay graduation in order to complete WIL program	24%	12%	18%
Workload is too challenging	24%	20%	9%
My current program at school does not offer WIL	20%	12%	3%
Having to relocate in order to complete WIL program	18%	14%	13%
Excessive paperwork to fill out	18%	10%	7%
Potential increase in debt due to extended stay in school	17%	17%	8%
I have too many family/personal commitments to participate in WIL	12%	11%	4%
I want to participate in WIL but haven't found an opportunity	11%	14%	6%
I do not feel like WIL programs are trying to recruit me	9%	11%	8%
Insufficient number of positions available to students WIL program	9%	17%	16%
I don't see a benefit to participating in WIL	7%	6%	1%
I am worried about finding a welcoming workplace culture	7%	14%	8%

Entering the SWPP Program: Recruitment and Equity

Across sectors, employers participating in the SWPP were most likely to recruit students through their formal relationships with post-secondary institutions (62%). Many also used their personal connections and networks (36%), Outcome Campus Connect (33%)[2], LinkedIn, Indeed, or other job boards (29%). Given that the second most common barrier to SWPP participation for students who have completed a SWPP placement was finding positions (16% noted insufficient numbers of positions as a barrier to entry), attention to recruitment channels may be salient for ensuring that SWPP students are able to access roles equitably.

The SWPP nevertheless seems to be promoting diverse workforce development in industries across Canada: 71% of SWPP employers reported hiring WIL participants from equity-deserving communities that are underrepresented in their sector. Furthermore, some of these employers made new, positive changes to their workplace environments or HR policies after hiring students from equity-deserving communities:

- 21% made informed changes to supervisory or mentorship structures
- 12% made changes to acknowledge new holidays or traditions in the workplace
- 11% implemented workplace cultural safety training
- 10% created new workplace accommodations
- 5% changed how they collected demographic data in their organization
- 5% made changes to their pay equity policies.

For those who wanted to hire from equity-deserving communities but found it challenging, 16% reported that there weren't any candidates, 11% mentioned that there was not a lot of diversity in the majors they typically hired from, and 8% noted that they did not typically prioritize hiring from equity-deserving groups.

[2] SDC has invested in a shared platform, Outcome Campus Connect, to address logistical matching challenges of connecting students to employers at scale and across Canada's considerable eco-system of publicly funded post-secondary institutions. With every WIL posting an employer can target and recruit student talent from subscribing public post-secondary schools in Canada.

Benefits of WIL Participation

When SWPP and other WIL students were asked to name up to three benefits of WIL participation, many in each group picked practical work experience as a primary reason for participating. Earning money, networking, boosting their resume, and determining whether their chosen career suited them were also common benefits of WIL. This echoes the findings of other research into WIL outcomes discussed in Section I – while many evaluations seek to understand employability in a student's field following WIL, WIL may, in some cases, give the students the information they need to make an informed decision to change their career plans. The same trend appeared in the other recent evaluation of the SWPP, where placements were found to "confirm career choices or discover other potential career paths" (Employment and Social Development Canada, 2023).

Building "soft," transferable, or human skills was recognized as a top benefit of WIL participation by 12.26% of SWPP students and 13.27% of other WIL students. Importantly, "gaining practical work experience," the primary benefit for both groups, can also be thought of as related to transferable skill development. Section I articulated WIL's effectiveness in teaching self-efficacy and adaptability, which some skill taxonomies refer to as social and emotional skills (e.g., OECD, 2019). While this evaluation's survey called out written and oral communication as illustrative soft skills, "practical work experience" also implies a degree of interpersonal, social, and emotional skill development. Canadian employers have emphasized the importance of human skills for new recruits, making this outcome of WIL essential for workforce development (Business Higher Education Roundtable, 2019; Canadian Federation of Independent Businesses, 2018).

Interestingly, improving academic performance is less likely to be seen as a benefit than work-related outcomes for both SWPP and other WIL students. This may speak to another point articulated by other WIL evaluations (see Section I): that is, students may not always see clear connections between WIL and their studies.

Table 8: Top benefits to WIL participation (students asked to select their top three) for treatment and control groups.

SWPP Students		**Non-SWPP WIL Students**	
Gain practical work experience	49.24%	Gain practical work experience	36.58%
Earning money	35.20%	Make connections with professionals in my field of study	26.93%
Determine if this career suits me	31.89%	Experience professional work environment	25.13%
Helps boost resume profile	31.67%	Helps boost resume profile	24.02%
Experience professional work environment	28.47%	Determine if this career suits me	21.61%
Make connections with professionals in my field of study	25.49%	Earning money	21.21%
Work on projects directly aligned with my academic pursuits	14.05%	Improve technical skill sets	18.49%
Provides a break from academic studies	13.72%	Find a job sooner	15.48%
Better situate myself for a job offer	13.45%	Work on projects directly aligned with my academic pursuits	13.97%
Improve soft skill sets (written and oral communication)	12.26%	Improve soft skill sets (written and oral communication)	13.27%
Improve technical skill sets	11.98%	Better situate myself for a job offer	12.16%
Find a job sooner	10.95%	Increased earning potential	10.55%
Increased earning potential	7.32%	Improve academic performance	8.74%
Improve academic performance	4.18%	Provides a break from academic studies	8.54%
None of these	0.70%	None of these	2.11%

Closing the Loop: Education During the SWPP

Nearly all SWPP delivery partners offer some type of virtual or in-person training for SWPP students: however, training opportunities vary in length, format, content, and whether they are optional or required (Employment and Social Development, 2022). Several of the partners in this project offer optional e-learning courses that students undertake while completing their SWPP placement. These courses are micro-credentials offering foundational (human, social-emotional, and workplace-ready) skills and relevant technical skills.

A total of 88 employers from the SWPP/Treatment group allowed students to participate in an optional micro-credential as a part of their placement. About two-thirds of employers agreed that these credentials had provided students with foundational or "soft" skills relevant to students' educational programs (64%) or to employers' workplaces (66%). Just over half of employers agreed that these credentials provided students with technical skills relevant to their educational programs (55%) or to employers' workplaces (57%).

SWPP employers who did not have their students participate in micro-credentials (but who had the option) felt they weren't able to find a credential that was relevant to their workplace (37%), or that their student didn't want to take the micro-credential (35%), or preferred that their student spend all of their SWPP placement time working (29%).

These findings suggest that SWPP delivery partners who offer micro-credentials as part of student placements are recognized by many employers as offering important foundational/ soft skills training but that many employers and students elect not to take advantage of these courses if they are not able to make connections between the courses and workplace needs. Furthermore, as noted in Employment and Social Development Canada's recent SWPP evaluation (2022), awareness is a key issue for training providers: in ESDC's study, under half of the students interviewed knew that training was available. As discussed in Section I, a high-quality WIL program is thought to include integration between workplace experience and curriculum, as well as opportunities for reflection. In order to build on WIL's potential to make connections between work and education for students, SWPP delivery partners that offer micro-credentials can continue to develop industry validation frameworks to build awareness and relevance, and emphasize the role that their programs play in offering students a chance to reflect on what they are learning about foundational workplace skills.

Benefits for Students: Comparing Treatment and Control, SWPP and Other WIL

While Section II of this evaluation has presented simple descriptive statistics, it is also possible to compare Control, Treatment, the SWPP, and other WIL respondents using regression models that compare the difference in the average responses to survey questions between each group. Importantly, this is after controlling for the differences in the observable characteristics between the treatment and control groups, including the field of study (as SWPP respondents disproportionately occupied STEM fields, for example). A full list of variables incorporated into the regression can be found in Appendix D.

Table 7 shows the results of two comparisons between groups of student respondents: First, all Treatment (SWPP) and Control (non-SWPP) and then all Treatment (SWPP) and all other types of WIL (subsample of Control). Both of these comparisons show several statistically significant results. On a scale of 1 to 5, with 1 being "completely disagree" and 5 being "completely agree," SWPP students are more likely to report a 4 or a 5 in several statements. Students in the SWPP are 13% more likely than the Control group to agree that they are confident they will find a job after graduating, 13% more likely to agree that they will find a job in their field, 29% more likely to agree that working during school is an important supplement to their education, and 13% more likely to agree that they enjoy their education/training program. Compared with the subsample of non-SWPP WIL students, SWPP respondents were 20% more likely to agree that working during school is an important supplement to education and 10% more likely to be confident that they'll find a job in their field after graduating and 9% more likely to report enjoying their education program.

Finally, students in the SWPP self-report substantial and statistically significant higher scores for skills. On a scale of 1 to 5, with 1 being not comfortable and 5 being very comfortable, they are more likely to report a 4 or a 5 in all skills measured than the control group. Focusing on the statistically significant results, they are more confident in writing (10% more likely to report a 4 or 5), communication (15% more likely to report a 4 or 5), numeracy (10% more likely to report a 4 or 5), creativity and innovation (12% more likely to report a 4 or 5), reading (7% more likely to report a 4 or 5), digital skills (10% more likely to report a 4 or 5), collaboration (14% more likely to report a 4 or 5), and adaptability (13% more likely to report a 4 or 5).

When the comparison turns to the SWPP vs. other forms of WIL, SWPP students are still more likely than other WIL students to report comfort in communication (10%), creativity and innovation (13%), reading (4%), collaboration (10%), and adaptability (11%).

Table 9: Difference in student groups' confidence in skills and employability after controlling for academic and demographic variables.

Please indicate how strongly you agree or disagree with the following statements (Dependent variable is an indicator equal to 1 if the response is "Completely agree" or "Agree" and 0 otherwise)				
Question	**% Difference, Treatment & Control**	**p value, Treatment & Control**	**% Difference, SWPP and Other WIL**	**p value, SWPP and other WIL**
I am confident that I'll find a job after graduating	0.126	0.005	0.078	0.109
I am confident that I'll find a job in my field after graduating	0.131	0.006	0.099	0.065
I believe that working during school is an important supplement to my education	0.292	0.000	0.201	0.000
I enjoy my education/training program	0.129	0.003	0.090	0.053
I find it challenging to balance school and priorities in my personal/home life	-0.077	0.139	-0.088	0.147
I find it challenging to balance work and school	-0.059	0.263	-0.094	0.124
I get better grades than my classmates	0.056	0.285	0.021	0.736
I want to pursue other formal education after graduating	0.007	0.892	0.030	0.622
I will graduate with little to no student debt	-0.072	0.164	-0.089	0.135
On a scale of 1-5, where 1 is not comfortable, and 5 is very comfortable, how prepared are you to use the following skills in the workplace. (Dependent variable equals 1 if the response is 4 or 5, and 0 otherwise.)				
Writing	0.097	0.027	0.061	0.232
Communication	0.148	0.000	0.099	0.012
Numeracy	0.098	0.044	0.092	0.097
Creativity & Innovation	0.119	0.011	0.130	0.014
Problem Solving	0.052	0.164	0.046	0.265
Reading	0.073	0.038	0.043	0.283
Digital Skills	0.104	0.018	0.090	0.065
Collaboration	0.138	0.000	0.098	0.014
Adaptability	0.129	0.000	0.110	0.004

Benefits for Employers

Reporting on challenges related to talent they had encountered during the last year, some employers participating in the SWPP program had needed to reduce staff (8.85%), but more reported challenges finding qualified new staff (35.77%). About one in five SWPP employers (18.42%) reported giving staff responsibilities to a subsidized WIL student as a way to adjust organizational resources. Similarly, a quarter of SWPP employers (26.56%) commented that the program was "considered as a solution to [their] resourcing needs." Comparatively, only 12% of non-SWPP WIL employers considered WIL to be a solution to resource needs.

SWPP employers were asked to, on a scale from 1 to 5, rate the degree to which they had experienced the following outcomes of placing a SWPP student. In Table 8, these responses are broken down by sector (while all sectors were represented in this survey, the Table only displays those that had a minimum of 30 respondents). Across sectors, filling short-term labour needs and evaluating students for future long-term employment were the most highly rated positive outcomes of the SWPP. Furthermore, **48%** of surveyed SWPP employers reported having hired a WIL or SWPP student after their graduation.

Table 10: SWPP Employers' self-reported benefits of participating in the SWPP program. Employers were given a rating scale of 1–5, where 1 was "completely disagree," 2 was "disagree," 3 was "neither agree nor disagree," 4 was "agree," 5 was "completely agree," and respondents also had the option to say that they did not know. All mean responses shown here fall between neutral and "agree." Those 3.5 or higher are highlighted.

To what degree have you experienced any of the following desired outcomes during SWPP placements? (Rating Scale 1-5)	n	New ideas/ fresh perspective	Diverse talent recruitment	Lower recruitment costs	Short-term labour needs	Evaluate for future long-term employment
Manufacturing	128	3.5	3.34	3.27	3.45	3.83
Professional, scientific and technical services	209	3.26	3.41	3.28	3.64	3.75
Educational services	39	3.74	3.72	3.49	3.54	3.64
Health care and social assistance	125	3.47	3.39	3.36	3.65	3.38
Information, culture and recreation	35	3.46	3.31	3.09	3.49	3.43
Other	144	3.43	3.42	3.39	3.68	3.64
All Respondents (Mean)	847	3.42	3.4	3.29	3.6	3.62

Section III explores the SWPP's benefits to employers and students through an economic lens. It offers an overview of economic impacts that can be associated with the SWPP and shares insights from two models that describe these impacts. The first model quantifies the near-term and direct economic impact (dollar value, or "payoff") of the program for employers and students, while the second showcases regression results according to their impact on medium-term direct and indirect economic impacts

Section III: Understanding SWPP's Impact on the Economy

Wage subsidy programs like the SWPP that facilitate meaningful work experience for students provide employers with a pool of skilled entry-level talent and support economic activity that benefits society at large. The foundation of government subsidy programs, such as the SWPP, rests in assumptions like the following:

1. Government has a role to play in encouraging these transactions (between student interns and employers, in this case);
2. In the absence of government intervention, these transactions would not occur in high enough volumes to create substantial economic and/or societal impact;
3. Investment in such programs (i.e., taxpayer dollars used to run them) is justified due to strong capacity for return on investment; this may be in the near, medium, or long term. Put otherwise, the program's outputs and outcomes offer economic and other value for society that at least matches, and ideally exceeds, the cost of the program.

Transactions between students and employers in the SWPP yield **direct and indirect economic benefits**. Direct economic benefits include:

- Expanded federal and provincial individual tax base
  - » Students earn taxable income via the SWPP; withholdings contribute to the federal tax base, as well as the tax base in their province or territory.
- Increased spending by employers
  - » With additional employees, employers boost spending on labour-related supports, including workplace tools and resources, employee benefits, etc.
- Increased general economic activity by students
  - » Students earn wages for their SWPP placements; as such, students have more disposable income than they would have had in the absence of SWPP participation, which can be used to stimulate economic activity.
- Increased investments by students
  - » In addition to increased general economic activity, students may use their SWPP income to make investments that benefit them and the broader economy. Examples include paying off student loans, investing in stocks or bonds or retirement plans, adding to their personal savings, etc.

- Increased productivity
    - » Three key variables impacting productivity are labour, capital investments, and efficiency. Work placement programs like the SWPP focus on creating a skilled labour pool. Skilled labour is positively correlated with business productivity, especially when this investment is coupled with capital investments that facilitate worker efficiency and management capacity.

Transactions in the SWPP program also produce **indirect economic benefits.** These include:

- Improved educational experience for students
    - » Students participating in the SWPP report higher levels of satisfaction with their educational experience compared to those enrolled in other WIL programs or no WIL program. Greater enjoyment of educational programs may be associated with higher rates of completion/graduation.
- Increased employability of new graduates
    - » Students that participate in the SWPP and other WIL programs practically apply knowledge earned in their post-secondary program to real-life business needs. Practical application is critical to bridge the gap between post-secondary education and the workforce by helping students understand and respond to real-life employer needs. As discussed in Section II, students that participated in the SWPP report greater confidence, displaying core in-demand skill sets like creativity and innovation, communication, and adaptability, compared to students in other WIL programs and those not enrolled in work placements.
    - » Students with work experience gained throughout their post-secondary education may also have a "leg up" on peers without this experience when applying to entry-level roles. In addition to increased capacity for skill development—namely, "soft" skills that are more difficult to teach and are often best learned on the job—students participating in the SWPP and other WIL programs have the chance to build and expand professional networks before entering the labour market full-time.
    - » Recent graduates with work-integrated learning experience may have an easier time sourcing full-time employment than their counterparts without this experience. SWPP students report greater confidence in their ability to source meaningful employment (and earn higher wages in the future) than both their WIL and non-WIL counterparts.

- Improved employer training capacity
    - » Employers that participate in the SWPP and other WIL programs benefit directly by subsidized access to an employee but also by gaining an opportunity to train their own staff managers, mentors, and supervisors. Internal employees are paired with SWPP students and are responsible for ensuring that their placement provides value to both employers and students. Internal employees in these supervisory roles enhance their own leadership skill sets—management efficiency is associated with increased business productivity.

The SWPP provides clear benefits that directly and indirectly support a stronger labour market and a more resilient Canadian economy. The following microeconomic models showcase the overall net benefit of the SWPP by estimating the value of the program to participants (employers, students) and society at large.

The models rely on primary data collected from students and employers enrolled in SWPP programs delivered by eight partners. Each model measures the effectiveness of the SWPP under different contexts. The first model estimates the SWPP's near-term direct economic impact, (i.e., the amount of economic value generated by the SWPP for employers and students). The second estimates medium-term direct and indirect economic impacts of the SWPP; considered in this analysis is the impact of the SWPP on student earning potential (influencing economic health), the ability to secure meaningful full-time employment upon graduation, and student employability (influencing gainful employment/underemployment).

Model 1: Micro Foundations Model, Direct and Near-Term Economic Benefits

This model leverages data from the treatment group to estimate the **direct and near-term[3] economic impact** of the SWPP, defined as the payoff for participating employers and students.

Employer Payoff from the SWPP

The employer's utility (otherwise known as the financial benefit from the use of the SWPP) is defined as the following:

$$^{U}Employer = Student\ Labour\ Value - Student\ Wage$$

In other words, the value of the program to employers is equal to the value of the student's labour, minus the salary to support the student. Both values have been estimated through responses from the survey of employers involved in the SWPP programs administered by the delivery partners. The Student Wage is estimated according to employer self-reporting data for salary. The result of this question is a quantifiable figure that represents payments made in exchange for the student's labour. Notable is the reality that employers may experience additional benefits from participating in the program, including those reported in Section II, and many of these benefits have a financial impact. For example, the ability to pre-screen workers without fully committing to a contract can decrease recruitment costs; participation in the program may reflect well on an employer that "gives back" to students and provides opportunities, and this can yield a public relations benefit. However, such benefits are not easily tracked and their financial impact, in most cases, is subjective; as such, the model is a conservative estimation of the direct financial benefit to an employer.

Estimating Student Labour Value is more challenging because it is rooted in a theoretical scenario. First, it is assumed that the Student's Labour Value is greater than or at least equal to the Student Wage (if this were not the case, presumably, the employer would not engage in the transaction). Student Labour Value is estimated by understanding the maximum potential value of employer contribution (i.e., the most money employers would pay for a SWPP student before second-guessing their decision to hire).

The following question was posed to employers that participated in the SWPP to derive this value:

"What is the maximum monthly wage that your firm would be willing to pay for this employee so that you would be indifferent between hiring the worker and not hiring?"

[3] This study defines near-term as taking place within a two-year period of program end.

Figure 5 shows a histogram for employer utility (U_Employer). This is visualized as the average surplus in dollars per month to employers from the SWPP placement. On average, the maximum wage that employers would be willing to pay for SWPP students in the sample is $3,545 per month; this is compared to the $3,144 on average that employers self-report paying SWPP students per month. As such, according to their own self-reporting, **employers involved in the SWPP yield an average benefit of $401 per month per student.**

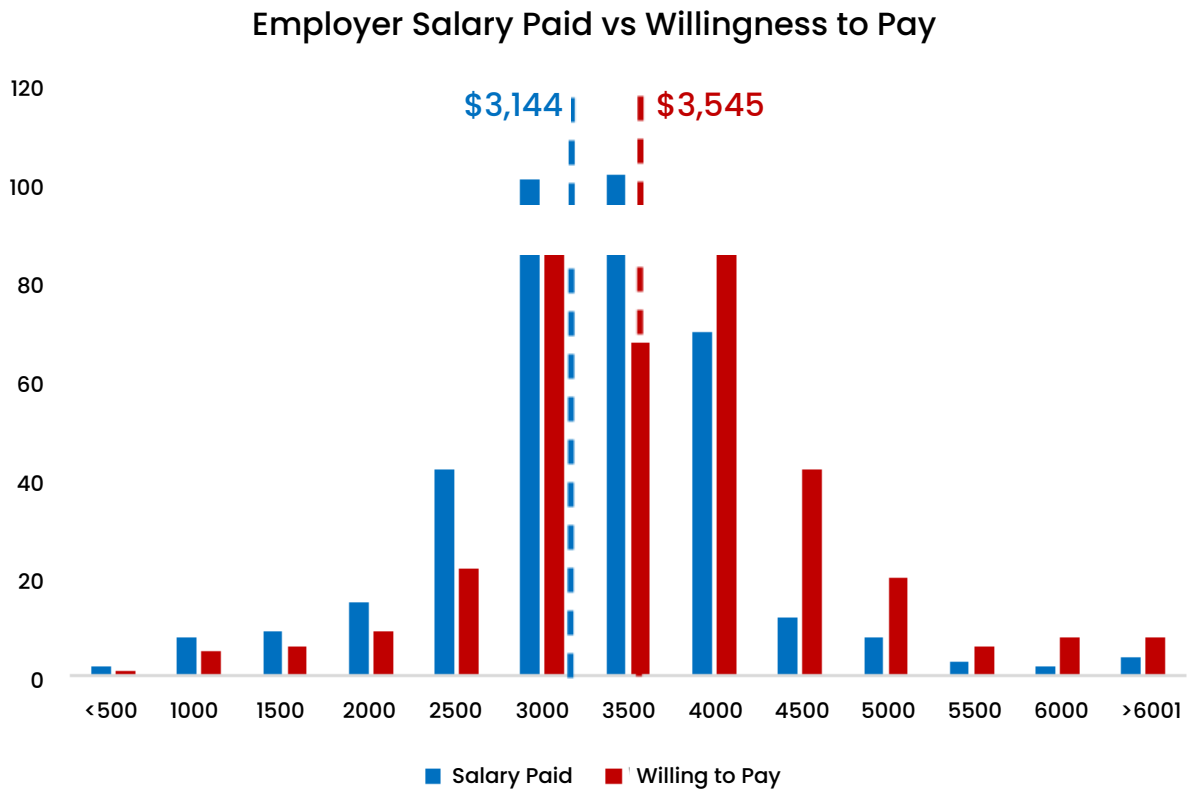

Figure 5: Distribution of Self-Reported Employer Surplus ($/Month)

Student Payoff from SWPP

The student's utility or financial benefit from the SWPP can be defined by the following utility function:

$$U_{Student} = Wage\ Received - Opportunity\ Cost$$

In other words, the financial value of the program to students is defined as the wage received from the program minus the opportunity cost in time and effort. The opportunity cost is essential to consider in this equation. In theory, participating students could have spent their time and effort on other activities; as such, the program only creates value for the student if participation in the SWPP is more valuable than the next-best alternative.

Each factor in the student's utility function is estimated through questions posed to the students that participated in the program.

First, the average total wage received by the student is estimated through the following question:

"During your Student Work Placement Program (SWPP) placement, what is/was your average monthly pre-tax wage? This information is entirely confidential and is used to calculate the value of the program."

Next, the opportunity cost is estimated through the following question:

"If you had never participated in the Student Work Placement Program (SWPP), what average monthly wage do you expect that you would have been able to earn during the same working period? This information is entirely confidential and is used to calculate the value of the program."

Figure 6 shows the difference between students' actual monthly wage earned via the SWPP placement and the estimated average monthly wage via students' next-best alternatives. According to their own self-reporting, SWPP placements yield students $2,927 on average per month, whereas their next-best alternative would yield them $1,889 per month. As such, **students participating in the SWPP report receiving, on average, $1,182 more per month via their placements** than they would have received in their next-best alternative.

Figure 7 shows the difference between actual monthly wages received by students through the SWPP placement and the lowest wage that students would have accepted for the SWPP placement. Here, students self-report an **average of $221/month in extra earnings above their minimum acceptable wage**. Two things are important to note, however. First, on average, and across nearly all disciplines, students participating in the SWPP who identify as women tend to report lower minimum acceptable wages than men. Next, across nearly all disciplines, participating students who identify as women also tend to have received actual wages that closely mirror their minimum acceptable wages, whereas those who identify as men received wages notably above that figure [4]

[4] Close to minimum acceptable wage is defined as +/- $100; above minimum acceptable wage is defined as +$101-$149; notably above minimum acceptable wage is defined as +$150.

—in other words, results from people who identify as men in the treatment group tip the monthly surplus positively. Further investigation of these results vis-à-vis program design, deployment, and quality control may uncover opportunities for improved gender pay equity.

Overall, Figures 6 and 7 both display positive numbers, which suggests that students attribute positive economic value with the SWPP; this is both relative to their next-best alternative to the SWPP and to their minimum acceptable wage.

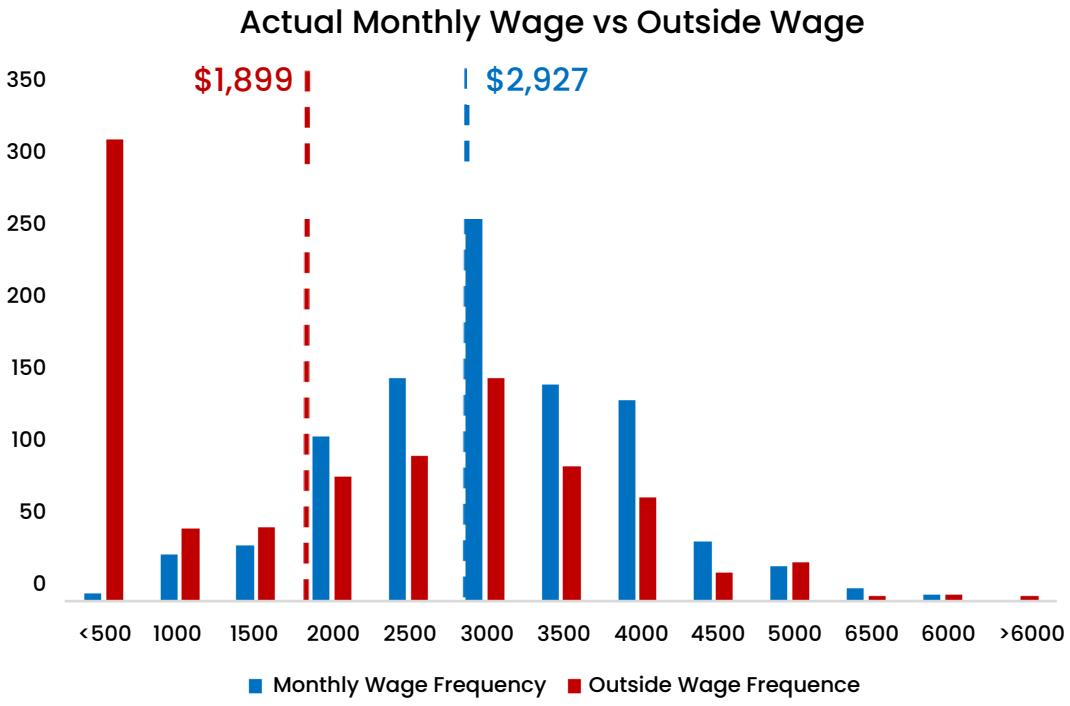

Figure 6: Actual Monthly Wage Minus Wage Student Expects to Receive at Next-Best Alternative

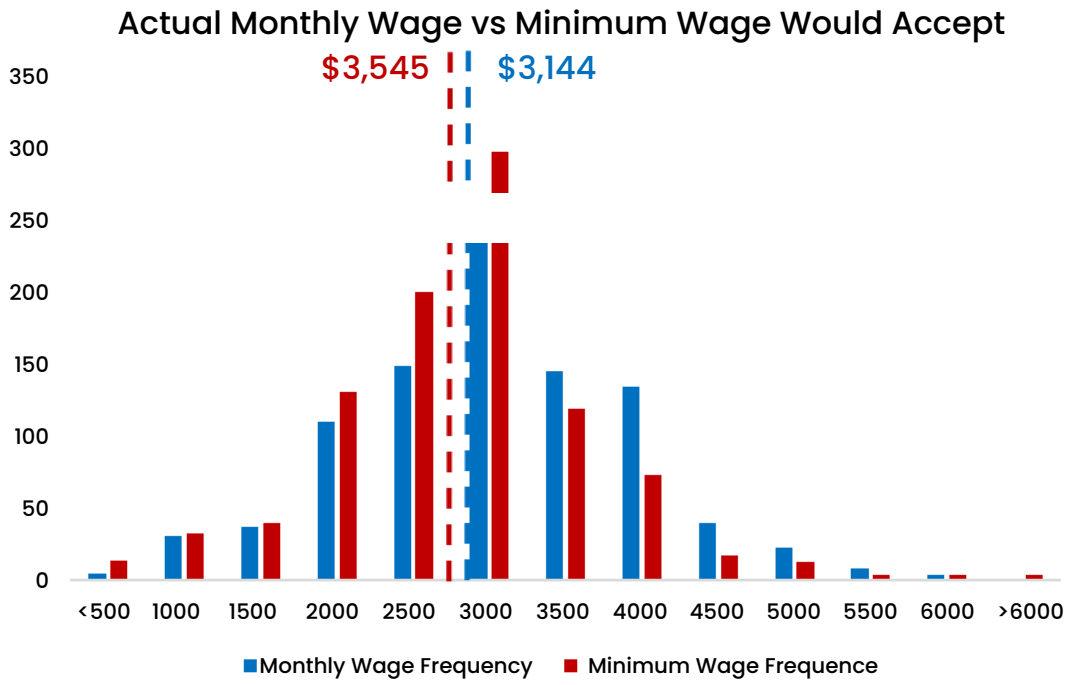

Figure 7: Actual Monthly Wage Minus Lowest Wage the Student Would Accept to Work SWPP Job

This model assumes that the average student's utility would be equal to zero if they were paid their minimum acceptable monthly wage in the SWPP, and the opportunity cost is equal to the wage they would have earned in their next-best alternative.

Outcomes and Implications

This theoretical model, leveraging treatment survey data with a substantial sample size, suggests that the SWPP generates considerable direct and near-term economic value for both employers and students. When extrapolated to the full breadth of the SWPP (i.e., all students, all employers, via all delivery partners), the direct economic benefits outstrip taxpayer investment in the program (Budget 2023 allocated $197.7 million for the program in 2024-2025).

Employers report that each student, on average, creates $401 in value for their companies per month. Across the 847 observations in the employer treatment sample alone (i.e., samples from just eight delivery partners), this corresponds to a net **benefit to employers of $339,647 per month or up to $1.36M per placement period.[5]**

The model assumes that each employer only engages one student. However, many of the delivery partners work with employers that onboard multiple students each year—in some cases, larger employers may onboard as many as 30 students.

Moreover, it is estimated that the average student is deriving $1,038 a month in additional financial benefit from the program (U_Student=$2,927-$1,889=$1,038). This benefit is in addition to the $401 in utility benefit earned per month by the average employer. With 1,844 students in the treatment sample, this corresponds to **a net financial benefit to students of $1.91M per month, or up to $7.66M per placement period.[6]**

This is likely a conservative estimate because the educational value of the SWPP for students is not included in the model. While actual and potential wages are easily quantifiable, educational value includes intangible benefits for which a direct quantitative relationship is tenuous. Notably, educational value includes elements associated with personal growth, such as exposure to different perspectives, exposure to different methods of problem solving, etc. Not only is the value of this experience in the SWPP not easily quantifiable, but it is not easily compared to the potential educational value from other WIL programs, academic study, or not working (e.g., leisure, self-study, or other experiential activities like travel).

[5] Assumes a 4-month placement period.

[6] Assumes a 4-month placement period.

Model 2: Regression Analysis, Medium-Term and Indirect Economic Benefits

While the first model applied microeconomic theory to build a utility function for students and employers that estimates the direct and near-term economic value of the SWPP, the second model uses empirical regressions to compare responses in the treatment and control student surveys. This is done to estimate the program's **medium-term[7] economic impacts and indirect economic benefits.**

Outcomes and Implications

Medium-Term Economic Impact

All regressions control for the following: hourly rate the student earned in 2022, student age, PSI enrolment status (full-time vs. part-time), major (area of study), province or territory, school type (college, university), community type (urban, rural, etc.), and gender. Rows in green are ones where the coefficient is statistically significant and unlikely to be attributable to mere chance.

SWPP students do not expect to earn a statistically significant amount more per year than the control group by 2023—in other words, there appears to be no immediate "payoff" for SWPP students in terms of wages compared to those not participating in the SWPP or participating in other WIL programs. However, a look at the medium term showcases a positive correlation between the SWPP and earnings. In four years (by 2027), SWPP students expect to earn considerably more per year than their counterparts ($10,000 more per year than students who did not participate in any work placements and over $11,000 more per year than students that participated in other WIL programs).

Although this is only an estimate of future earnings (and therefore not confirmable at this time), the regression identifies that **the SWPP creates a larger medium-term economic impact than would exist in its absence and compared to other WIL programs**. It is yet unclear why SWPP students expect to have considerably higher future earning potential than students in other WIL programs (the reasons for this distinction warrants further investigation). However, the SWPP may influence future earnings in a multitude of ways: first, the program provides students with real-life work experience that allows them to apply technical or vocational skills learned in their studies; second, it allows students the opportunity to gain in-demand "soft skills" that are increasingly sought by employers but notoriously difficult to teach in a classroom setting. In fact, recent surveys completed by ICTC on in-demand skills across roles in the digital economy find that employers consistently rank skills like creativity, communication, teamwork, and critical thinking as important or mandatory, at times, more than technical skills.

[7] This study defines medium-term as taking place within a 2-10 year period from program end.

New graduates with a combination of these skills—both technical and "soft"—are likely more marketable and attractive in the labour market. A third factor may also influence perceptions of future earning potential among SWPP students: exposure to market wages. By being compensated for their labour in the SWPP, students inevitably gain some understanding of market rates for the roles that they—and other SWPP students in their networks—worked in. This knowledge, even at a base level, may help inform students about appropriate wages when applying for jobs and help them better negotiate fair salaries. This insight may be especially pertinent for women who, according to the treatment dataset, tend to have lower minimum salary "asks" compared to their male counterparts.

Ultimately, higher earning potential creates a direct medium-term economic impact. Higher wages contribute more to federal and provincial/territorial tax bases, support economic activity and spending, and enable workers to build wealth, which in turn, can further benefit the broader economy.

Table 11: Estimates of future earning potential: Treatment vs. control, students.

Variable	Coefficient	Std. Error	p value
Please provide your best guess of your future total pre-tax income for 2023.	416.441	3212.665	0.897
Please provide your best guess of your future total pre-tax income for 2027.	9773.981	4053.876	0.016

Table 12: Estimates of future earning potential: Treatment group compared to students participating in other WIL programs.

Variable	Coefficient	Std. Error	p value
Please provide your best guess of your future total pre-tax income for 2023.	-1879.411	3836.522	0.624
Please provide your best guess of your future total pre-tax income for 2027.	11407.650	4773.114	0.017

Indirect Economic Impact

SWPP Impacts on Employment/Unemployment

While also aspirational in nature, students in both the treatment and control groups were asked to estimate their likelihood of finding employment upon graduation. This is important, as the ability of new entrants to be rapidly absorbed into the labour market—and therefore fill employer demand for entry-level roles—is a cornerstone to labour market efficiency; an efficient labour market is required to uphold a functional and resilient economy. As discussed in Section II, there is a positive correlation between the SWPP and employment prospect perceptions post-graduation. That is, compared to students across the control group, SWPP students are 12% more likely to feel confident in their ability to find a job after graduating and 12% more likely to believe that they will find a job in their field. SWPP students are also more inclined to believe that working during school is important and more likely to enjoy their educational journey.

Measuring employment outcomes of SWPP participants over time is a valuable proposition and would be critical to testing these and other assumptions and evaluating the long-term impacts of the program. However, there is reason to believe that exposure to the SWPP can contribute to making students more employable or more attractive in the labour market. Among other things, SWPP students have opportunities to refine existing skills and learn new ones, test potential career pathways, and build peer networks and networks of prospective employers.

Employer networks built through SWPP placements can contribute directly to positive employment outcomes. First, connecting with employers allows students to gain greater insight into the characteristics that employers seek in full-time hires and tailor their skill development pathways and job applications to better meet those needs. SWPP placements can provide students with first-hand knowledge of in-demand technical skills, critical "soft" skills (including how employers assess these skills), and other considerations, including employee expectations and differences in company culture; the latter especially are elements that are not readily understandable via a job posting or a company website. Next, strong employer networks can help students stay abreast of employment opportunities. For example, recent ICTC research finds that in both digital industries like creative technology and "non-digital" sectors like retail and hospitality, informal recruitment methods are common. That is, while employers may post jobs on their websites or on job boards, word of mouth and referrals can be just as, if not more, important in the hiring process. Lastly, exposure to different employers through the SWPP can create direct employment outcomes—that is, participating students may be retained by employers as full-time hires; this is especially popular for students that participate in the SWPP during their final year of study. As discussed in Section II, just under half (48%) of SWPP employers report hiring SWPP or WIL students after graduation. While data on the "conversion" rates of SWPP students themselves is not available without relying on self-reporting employer data, other research points to this happening in practice. For example, ICTC research for the creative technology sector in B.C. finds that employers "convert" WIL students to full-time hires roughly 50% of the time.

SWPP Impact on Meaningful Employment/Underemployment

Finally, students in the SWPP self-report notably higher levels of confidence in their skills compared to those enrolled in other WIL programs and those not participating in WIL at all. As mentioned in Section II, SWPP students are more likely to self-report strong writing skills, communication skills, numeracy skills, creativity and innovation skills, reading skills, collaboration skills, and a greater capacity for adaptability.

Although further investigation is needed to uncover the reasons for varying skill-level perceptions among SWPP vs. other WIL students, ultimately, stronger skill sets (and arguably, confidence in skill sets) are core to mitigating undesired labour market outcomes, including underemployment.

Although SWPP students were also more likely than their non-SWPP counterparts to believe that they will land a job in their field upon graduation, a more robust skill set (and one aligned with industry needs) honed through work-integrated learning may influence the ability to find full-time employment that is aligned with training and/or individual goals and needs.

Instances where employment does not align with worker needs are often referred to as underemployment. Examples of underemployment include the following: people working fewer hours than they'd like, people working in roles unaligned with their training, and people working in roles that are unaligned with their financial needs. The first example (part-time work where full-time is desired) is referred to as "visible" underemployment, where the latter two examples fall into the category of "invisible" underemployment. Both situations result in unmet employment needs and can contribute to unemployment, and eventually even long-term unemployment (i.e., when individuals are unemployed for long periods, they may stop looking for work altogether). High rates of underemployment create an unstable labour market and economic inefficiency.

While economic conditions play a role in finding meaningful employment, and some recent data suggests that underemployment may be on the rise with a slowing global economy, new graduates with robust skill sets that align with industry needs (and the ability to showcase and articulate those skills through previous work experience) are better positioned to find meaningful full-time employment that aligns with their goals.

Conclusion

High-quality WIL is known to be an effective tool for improving student employability, adaptability, and self-efficacy around the world. This study has outlined existing findings about WIL outcomes for students and explored the types of contributions Canada's SWPP program offers in particular. As a form of high-quality WIL (that is, paid, with support for students and employers that often includes ongoing training and reflection), the SWPP program improves work-ready skills and attributes in students and offers a way for employers to vet new hires and gain access to developing talent.

In addition to building skills, attributes, and networks, the SWPP program yields near-term and medium-term direct economic impacts for students and employers. Evidence also suggests that the program may offer indirect economic benefits to society, including helping students secure meaningful work during and after graduation, influencing higher future earnings, and enhancing critical skills that make new graduates more attractive in the labour market. Medium-term direct economic benefits and indirect benefits become evident when comparing the value of the SWPP to other WIL programs, suggesting that the program performs better than alternative work-integrated learning initiatives.

This study has offered an in-depth look at the SWPP and WIL in Canada through the lens of self-reported data. Future research into these areas should consider adopting a longitudinal design (e.g., returning to students later in their careers to assess their positions and salaries) or a pre-post design to examine change in learning outcomes before and after SWPP participation. Nevertheless, this research suggests that the SWPP is an integral part of Canadian workforce development and continues to offer significant positive outcomes for students and employers across the country.

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Appendix A: Studies on the Impact of WIL on Academic Performance and Academic Experience

Study	Country	Discipline	WIL Type
Adamczyk, A., Crawford, K., & Kim, Y. (2022). Assessing the benefits of college internships at a Hispanic serving institution. *Journal of Hispanic Higher Education*, 21(4), 432–449. https://doi.org/10.1177/15381927211041685	USA	Psychology, Economics, Sociology, Criminal Justice, Criminology, Humanities, Society and Law, Political Science, Public Administration, Management, and Science	Paid and Unpaid Internship
Bell, A., Bartimote, K., Mercer-Mapstone, L., & Moran, G. (2021). Exploring benefits and challenges of online work integrated learning for equity students. *Report from the National Centre for Student Equity in Higher Education*. https://www.ncsehe.edu.au/ wpcontent/ uploads/ 2021/08/Bell_USYD_EquityOnlineWIL_FINAL.pdf	Australia and USA	Health and Medicine, Social Sciences, Humanities, Sport and Recreation, Science, Engineering, Education, Management, and Fine Arts	Unpaid Internship
Drysdale, M. T. B., 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.	Canada	Engineering	Co-op
Drysdale, M. T. B., & 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.	Canada	Applied Health Studies, Arts, Engineering, Environment Studies, Math, and Science	Co-op
Drysdale, M. T. B., & 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. https://doi.org/10.1080/13639080.2018.1533240	Canada	Applied Health Studies, Arts, Engineering, Environment Studies, Math, and Science	Co-op
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.	Australia	Business	Paid Internship

Parker, 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. https://doi.org/10.1353/csd.2016.0012	USA	Liberal Arts	Internship (Pay Not Specified)
Purdie, F., Ward, L. J., McAdie, T. M., King, N., & Drysdale, M. (2013). Are work-integrated learning (WIL) students better equipped psychologically for work post-graduation than their non-work-integrated learning peers? Some initial findings from a UK university. *Asia-Pacific Journal of Co-operative Education*, 14(2), 117–125.	UK	Multidisciplinary	Types of WIL Not Specified
Raelin, J., Bailey, M., Hamann, J., Pendleton, L., Reisberg, R., & Whitman, D. (2014). The gendered effect of cooperative education, contextual support, and self-efficacy on undergraduate retention. *Journal for Engineering Education*, 103(4), 599–624. https://doi.org/10.1002/jee.20060	USA	Engineering	Co-op
Ramirez, N., Main, J., & Ohland, M. (2015). Academic outcomes of cooperative education participation. *2015 ASEE Annual Conference & Exposition, Seattle, Washington.*	USA	Engineering	Co-op
Samuelson, C., & Litzler, E. (2013). Seeing the big picture: The role that undergraduate work experiences can play in the persistence of female engineering undergraduates. *2013 ASEE Annual Conference & Exposition, Atlanta, Georgia*. https://doi.org/10.18260/1-2--22443	USA	Engineering	Co-op and Paid Internship
Sattler, P., & Peters, J. (2013). Work-Integrated Learning in Ontario's Postsecondary Sector: The Experience of Ontario Graduates. *Higher Education Quality Council of Ontario*. https://heqco.ca/wp-content/uploads/2020/03/WIL_Experience_ON_Graduates_ENG.pdf	Canada	Multidisciplinary (College and University Disciplines)	Co-op, Clinical Practicum, Field Placement, Paid and Unpaid Internship, Applied Research Projects, and Community Service Learning
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.	New Zealand	Science	Co-op

Appendix B: Studies on the Impact of WIL on Students' Employability and Readiness for Work

Study	Country	Discipline	WIL Type
Adamczyk, A., Crawford, K., & Kim, Y. (2022). Assessing the benefits of college internships at a Hispanic serving institution. *Journal of Hispanic Higher Education*, 21(4), 432–449. https://doi.org/10.1177/15381927211041685	USA	Psychology, Economics, Sociology, Criminal Justice, Criminology, Humanities, Society and Law, Political Science, Public Administration, Management, and Science	Paid and Unpaid Internship
Baert, B. 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, Article 102141. https://doi.org/10.1016/j.econedurev.2021. 102141	Belgium[8]	Humanities, Social Sciences, Science, and Engineering	Unpaid Internship
Bell, A., Bartimote, K., Mercer-Mapstone, L., & Moran, G. (2021). Exploring benefits and challenges of online work integrated learning for equity students. *Report from the National Centre for Student Equity in Higher Education*. https://www.ncsehe.edu.au/wpcontent/uploads/2021/08/Bell_USYD_EquityOnlineWIL_FINAL.pdf	Australia and USA	Health and Medicine, Social Sciences, Humanities, Sport and Recreation, Science, Engineering, Education, Management, and Fine Arts	Unpaid Internship
Bowen, T. (2018). Becoming professional: Examining how WIL students learn to construct and perform their professional identities. *Studies in Higher Education*, 43(7), 1148–1159. https://doi.org/10.1080/03075079.2016.1231803	Canada	Communications and Technology Studies	Unpaid Internship
Burford, S., Cooper, L., & Miller, F. (2020). Stolen knowledge: Student knowing in workplace practice. *International Journal of Work-Integrated Learning*, 21(2), 163–176.	Australia	Interdisciplinary; Includes Journalism and Graphic Design	Internship (Pay Not Specified)

[8] *We included this study, despite it having come from outside the five countries that are the focus of this knowledge synthesis, because it used an experiment to develop its results, and thus is a good complement to self-reported data.*

Caldicott, J. B. (2020). T*owards self-authorship in tourism education: The role of a Work Integrated Learning (WIL) program—Southern Cross University* [PhD Dissertation, Southern Cross University]. https://researchportal.scu.edu.au/ esploro/outputs/doctoral/Towards-self-authorship-in-tourism-education-the/991012875900202368	Australia	Tourism Studies	Paid and Unpaid Internship
Camacho, L. F. (2019). *Cooperative education and its impact on the student learning outcomes of business undergraduate students: A case study* [PhD Dissertation, Drexel University].	USA	Business	Co-op
Dietz, G. A. (2022). *A narrative exploration of the influences of internship experiences on the identities of Black engineers* [PhD Dissertation, University of Florida].	USA	Engineering	Co-op and Paid Internship
Drysdale, M. T. B., Callaghan, S. A., & Dhanota, A. (2020). Sense of belonging of sexual minority students participating in work-integrated learning programs. *Education + Training,* 63(2), 182–194. https://doi.org/10.1108/ET-06-2020-0156	Canada	Arts, Business, Engineering, Environment Studies, Health Studies, Math, and Science	Co-op
Drysdale, M. T. B., & McBeath, M. (2012). Self-concept and tacit knowledge: Differences between cooperative and non-cooperative education students. *Asia-Pacific Journal of Cooperative Education* 13(3), 169–180.	Canada	Arts, Business, Engineering, Environment Studies, Health Studies, Math, and Science	Co-op
Durham, S., Jordan, H., Naccarella, L., & Russell, M. (2020). Work-integrated learning and skill development in a Master of Public Health program: Graduate perspectives. *Journal of University Teaching and Learning Practice*, 17(4), 9–26. https://doi.org/10.53761/1.17.4.2	Australia	Public Health	Applied Research
Employment and Social Development Canada. (2022, May 31). *Evaluation of the Student Work Placement Program [Education and awareness*]. https://www.canada.ca/en/employment-social-development/corporate/reports/ evaluations/ student-work-placement.html	Canada	Science, Technology, Engineering, Math, Business, Social Sciences and Humanities, and Other Disciplines	Co-op and Paid Internship

Gault, J., Leach, E., & Duey, M. (2010). Effects of business internships on job marketability: The employers' perspective. *Education + Training*, 52(1), 76–88. https://doi.org/10.1108/00400911011017690	USA	Business	Co-op and Paid Internship
Helyer, R., & Lee, D. (2014). The role of work experience in the future employability of higher education graduates: Internships & graduate employability. *Higher Education Quarterly*, 68(3), 348–372. https://doi.org/10.1111/hequ.12055	UK	All Academic Programs, Except the School of Health and Social Care	Paid Internship
Jackson, D. (2013). The contribution of work-integrated learning to undergraduate employability skill outcomes. *Asia-Pacific Journal of Cooperative Education*, 14(2), 99–115.	Australia	Business, Law, Recreation Studies, Event Management, Engineering, Health Sciences, and Education	Work Placement, Internship, Practicum, Applied Research, and Community Service Learning
Jackson, D. (2015). Career choice status among undergraduates and the influence of work-integrated learning. *Australian Journal of Career Development*, 24(1), 3–14. https://doi.org/10.1177/1038416215570043	Australia	Business	Unpaid Internship
Jackson, D. (2017a). Using work-integrated learning to enhance career planning among business undergraduates. *Australian Journal of Career Development*, 26(3), 153–164. https://doi.org/10.1177/1038416217727	Australia	Business	Unpaid Internship
Jackson, D. (2017b). Developing pre-professional identity in undergraduates through work-integrated learning. *Higher Education*, 74(5), 833–853. https://doi.org/10.1007/s10734-016-0080-2	Australia	Business	Unpaid Internship

Jackson, D., & Bridgstock, R. (2021). What actually works to enhance graduate employability? The relative value of curricular, co-curricular, and extra-curricular learning and paid work. *Higher Education*, 81(4), 723–739. https://doi.org/10.1007/s10734-020-00570-x	Australia	Business and Creative Industries	Paid and Unpaid Internship, Practicum, Applied Research, and Community Service Learning
Jackson, D., & Collings, D. (2018). The influence of work-integrated learning and paid work during studies on graduate employment and underemployment. *Higher Education*, 76(3), 403–425. https://doi.org/10.1007/s10734-017-0216-z	Australia	Business, Law, Recreation Studies, Event Management, Engineering, Health Sciences, and Education	Paid and Unpaid Internship, Practicum, Applied Research, and Community Service Learning
Jackson, D., & Dean, B. A. (2022). The contribution of different types of work-integrated learning to graduate employability. *Higher Education Research & Development*, 42(1), 93–110. https://doi.org/10.1080/07294360. 2022.2048638	Australia	Science, Information Technology, Engineering, Architecture, Agriculture, Environment Studies, Education, Health Studies, Management, Business, Social Sciences, and Fine Arts	Paid and Unpaid Internship, Practicum, Applied Research, and Community Service Learning
Jackson, D., & Rowe, A. (2022). Impact of work-integrated learning and co-curricular activities on graduate labour force outcomes. *Studies in Higher Education,* 1–17. https://doi.org/10.1080/03075079.2022.2145465	Australia	Science, Information Technology, Engineering, Architecture, Agriculture, Environment Studies, Education, Health Studies, Management, Business, Social Sciences, and Fine Arts	Paid and Unpaid Internship, Practicum, Applied Research, and Community Service Learning
Jackson, D., & Wilton, N. (2016). Developing career management competencies among undergraduates and the role of work-integrated learning. *Teaching in Higher Education*, 21(3), 266–286. https://doi.org/10.1080/13562517.2015.1136281	Australia and the UK	Business, Tourism, Hospitality, Recreation and Events, Human Resource Management, Finance, Accounting, Management, and Other Vocational Disciplines	Unpaid Internship
Kilpatrick, S. (2019). *Visualizing the future: Work-integrated learning and the psychosocial and professional development of undergraduates* [PhD Dissertation, University of Mississippi]. Electronic Theses and Dissertations. https://egrove.olemiss.edu/etd/1551	USA	Engineering, Business, Accounting	Paid Internship

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.	Australia	Business	Paid Internship
Martin, A. J., & Rees, M. (2019b). Student insights: The added value of work-integrated learning. International *Journal of Work-Integrated Learning*, 20(2), 189–199.	New Zealand	Business, Sport and Exercise Studies, and Other Disciplines	Unpaid Internship
Martin, S., & Rouleau, B. (2020). An exploration of work, learning, and work-integrated learning in Canada using the Longitudinal and International Study of Adults. Statistics Canada. https://epe.lac-bac.gc.ca/100/201/301/weekly_acquisitions_list-ef/2020/20-22/publications.gc.ca/ collections/collection_2020/statcan/89-648-x/89-648-x2020001-eng.pdf	Canada	Interdisciplinary	Co-op, Paid and Unpaid Internship, Practicum, and Field Work
Pretti, T. J., Parrott, P. A. W., Hoskyn, K., Fannon, A. M., Church, D., & Arsenault, C. (2020). The role of work-integrated learning in the development of entrepreneurs. *International Journal of Work-Integrated Learning*, 21(4), 451–466.	Canada and the UK	Agri-food, Marketing, International Business, Engineering, Computer Science, and Nanotechnology	Co-op, Entrepreneurial WIL, and Paid Internship
Rigsby, J. T., Addy, N., Herring, C., & Polledo, D. (2013). An examination of internships and job opportunities. *Journal of Applied Business Research*, 29(4), Article 1131. https://doi.org/10.19030/jabr.v29i4.7921	USA	Accounting	Internship (Pay Not Specified)
Rothman, M., & Sisman, R. (2016). Internship impact on career consideration among business students. *Education + Training*, 58(9), 1003–1013. https://doi.org/10.1108/ET-04-2015-0027	USA	Business	Internship (Pay Not Specified)

Samuelson, C., & Litzler, E. (2013). Seeing the big picture: The role that undergraduate work experiences can play in the persistence of female engineering undergraduates. *2013 ASEE Annual Conference & Exposition, Atlanta, Georgia*. https://doi.org/10.18260/1-2--22443	USA	Engineering	Co-op and Paid Internship
Sattler, P., & Peters, J. (2012). Work Integrated Learning and Postsecondary Graduates: The Perspective of Ontario Employers. *Higher Education Quality Council of Ontario*. https://heqco.ca/wp-content/uploads/2020/03/WIL-Employer-Survey-ENG.pdf	Canada	Business, Marketing, Engineering, Education, Social Work, and Social Sciences	Co-op, Field Work, Internship (Pay Not Specified), Apprenticeship, Practicum, Community Service Learning, and Applied Research
Smith, C., Ferns, S., & Russell, L. (2019). Placement quality has a greater impact on employability than placement structure or duration. *International Journal of Work-Integrated Learning*, 20(1), 15–29.	Australia	Disciplines Not Listed	Internship (Pay Not Specified), Practicum, Applied Research, and Community Service Learning
Thompson, M. N., Perez-Chavez, J., & Fetter, A. (2021). Internship experiences among college students attending an HBC: A longitudinal grounded theory exploration. *Journal of Career Assessment*, 29(4), 589–607. https://doi.org/10.1177/1069072721992758	USA	Multiple Disciplines Including Biology, Psychology, and Studio Art	Paid Internship
Tiessen, R., Grantham, K., & Cameron, J. (2018). The relationship between experiential learning and career outcomes for alumni of international development studies programs in Canada. *Canadian Journal of Higher Education*, 48(3), 23–42.	Canada	International Development Studies	Co-op, Internship (Pay Not Specified), Applied Research, Community Service Learning, and Field Placements
Wolinsky-Nahmias, Y., & Auerbach, A. H. (2022). Evaluating the design and benefits of internship programs. *Journal of Political Science Education*, 18(4), 584–604. https://doi.org/10.1080/15512169.2022.2109481	USA	Political Science	Internship (Pay Not Specified)

Wolniak, G. C., & Engberg, M. E. (2019). Do "high-impact" college experiences affect early career outcomes? *The Review of Higher Education*, 42(3), 825–858. https://doi.org/10.1353/rhe.2019.0021	USA	STEM, Business, Social Sciences, Arts and Humanities, Education, Health and Human Services, and Other Fields	Internship (Pay Not Specified) and Community Service Learning
Wyonch, R. (2020). Work-ready graduates: The role of co-op programs in labour market success. *SSRN Electronic Journal, Commentary* 562. https://doi.org/10.2139/ssrn.3520206	Canada	Education, Arts, Humanities, Social Science, Business, Science, Math, Computer Science, Engineering, and Health Studies	Co-op
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.	New Zealand	Science	Co-op

Appendix C: Studies on the Impact of WIL on Students' Skills and Characteristics

Study	Country	Discipline	WIL Type
Caldicott, J. B. (2020). *Towards self-authorship in tourism education: The role of a Work Integrated Learning (WIL) program—Southern Cross University* [PhD Dissertation, Southern Cross University]. https://researchportal.scu.edu.au/ esploro/outputs/doctoral/Towards-self-authorship-in-tourism-education-the/991012875900202368	Australia	Tourism Studies	Paid and Unpaid Internship
Camacho, L. F. (2019). *Cooperative education and its impact on the student learning outcomes of business undergraduate students: A case study* [PhD Dissertation, Drexel University].	USA	Business	Co-op
Employment and Social Development Canada. (2022, May 31). Evaluation of the Student Work Placement Program [Education and awareness]. https://www.canada.ca/en/employment-social-development/corporate/reports/ evaluations/ student-work-placement.html	Canada	Science, Technology, Engineering, Math, Business, Social Sciences and Humanities, and Other Disciplines	Co-op and Paid Internship
Dietz, G. A. (2022). *A narrative exploration of the influences of internship experiences on the identities of Black engineers* [PhD Dissertation, University of Florida].	USA	Engineering	Co-op and Paid Internship
Drewery, D., Pretti, T. J., & Church, D. (2020). Contributions of work-integrated learning programs to organizational talent pipelines: Insights from talent managers. *International Journal of Work-Integrated Learning*, 21(3), 275–288.	Canada	Not Applicable	Co-op
Drysdale, M. T. B., & 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.	Canada	Applied Health Studies, Arts, Engineering, Environment Studies, Math, and Science	Co-op

Drysdale, M. T. B., & 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. https://doi.org/10.1080/13639080.2018.1533240	Canada	Applied Health Studies, Arts, Engineering, Environment Studies, Math, and Science	Co-op
Edwards, M. (2014). The impact of placements on students' self-efficacy. *Higher Education, Skills and Work-Based Learning*, 4(3), 228–241. https://doi.org/10.1108/HESWBL-05-2014-0015	UK	Accounting,	Finance, Business Management, Economics, International Relations, Political Science and Sociology Internship (Pay Not Specified)
Jackson, D. (2013). The contribution of work-integrated learning to undergraduate employability skill outcomes. *Asia-Pacific Journal of Cooperative Education*, 14(2), 99–115.	Australia	Business, Law, Recreation Studies, Event Management, Engineering, Health Sciences, and Education	Work Placement, Internship, Practicum, Applied Research, and Community Service Learning
Jackson, D. (2015). Career choice status among undergraduates and the influence of work-integrated learning. Australian Journal of Career Development, 24(1), 3–14. https://doi.org/10.1177/1038416215570043	Australia	Business	Unpaid Internship
Jackson, D. (2017b). Developing pre-professional identity in undergraduates through work-integrated learning. *Higher Education*, 74(5), 833–853. https://doi.org/10.1007/s10734-016-0080-2	Australia	Business	Unpaid Internship
Jackson, D., & Wilton, N. (2016). Developing career management competencies among undergraduates and the role of work-integrated learning. *Teaching in Higher Education*, 21(3), 266–286. https://doi.org/10.1080/13562517.2015.1136281	Australia and the UK	Business, Tourism, Hospitality, Recreation and Events, Human Resource Management, Finance, Accounting, Management, and Other Vocational Disciplines	Unpaid Internship

Kilpatrick, S. (2019). *Visualizing the future: Work-integrated learning and the psychosocial and professional development of undergraduates* [PhD Dissertation, University of Mississippi]. Electronic Theses and Dissertations. https://egrove.olemiss.edu/etd/1551	USA	Engineering, Business, Accounting	Paid Internship
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.	Australia	Business	Paid Internship
Martin, A. J., & Rees, M. (2019a). Student Insights: Developing T-Shaped Professionals through Work-Integrated Learning. *International Journal of Work-Integrated Learning*, 20(4), 365–374.	New Zealand	Business, Sport and Exercise Studies, and Other Disciplines	Unpaid Internship
Martin, A. J., & Rees, M. (2019b). Student insights: The added value of work-integrated learning. *International Journal of Work-Integrated Learning*, 20(2), 189–199.	New Zealand	Business, Sport and Exercise Studies, and Other Disciplines	Unpaid Internship
Pennaforte, A. (2016). A Behavior Focused Assessment of Co-op Performance: A Comparison of Co-op and Non-Co-op Graduating Students. *Asia-Pacific Journal of Cooperative Education*, 17(1), 61–74.	Canada	Applied Health Studies, Arts, Engineering, Environment Studies, Math, and Science	Co-op
Pretti, T. J., Parrott, P. A. W., Hoskyn, K., Fannon, A. M., Church, D., & Arsenault, C. (2020). The role of work-integrated learning in the development of entrepreneurs. *International Journal of Work-Integrated Learning*, 21(4), 451–466.	Canada and the UK	Agri-food, Marketing, International Business, Engineering, Computer Science, and Nanotechnology	Co-op, Entrepreneurial WIL, and Paid Internship
Purdie, F., Ward, L. J., McAdie, T. M., King, N., & Drysdale, M. (2013). Are work-integrated learning (WIL) students better equipped psychologically for work post-graduation than their non-work-integrated learning peers? Some initial findings from a UK university. *Asia-Pacific Journal of Co-operative Education*, 14(2), 117–125.	UK	Multidisciplinary	Types of WIL Not Specified

Raelin, J., Bailey, M., Hamann, J., Pendleton, L., Reisberg, R., & Whitman, D. (2014). The gendered effect of cooperative education, contextual support, and self-efficacy on undergraduate retention. *Journal for Engineering Education*, 103(4), 599–624. https://doi.org/10.1002/jee.20060	USA	Engineering	Co-op
Reddan, G. (2016). The Role of Work-Integrated Learning in Developing Students' Perceived Work Self-Efficacy. *Asia-Pacific Journal of Cooperative Education*, 17(4), 423–436.	Australia	Exercise Science	Internship (Pay Not Specified)
Samuelson, C., & Litzler, E. (2013). Seeing the big picture: The role that undergraduate work experiences can play in the persistence of female engineering undergraduates. *2013 ASEE Annual Conference & Exposition, Atlanta, Georgia*. https://doi.org/10.18260/1-2--22443	USA	Engineering	Co-op and Paid Internship
Wolinsky-Nahmias, Y., & Auerbach, A. H. (2022). Evaluating the design and benefits of internship programs. *Journal of Political Science Education*, 18(4), 584–604. https://doi.org/10.1080/15512169.2022.2109481	USA	Political Science	Internship (Pay Not Specified)
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.	New Zealand	Science	Co-op

Appendix D: Methodology

Methodology: Literature Review

To generate a long list of relevant resources, the research team first attempted an **exhaustive search strategy**. We searched academic databases including EBSCO's Education Source; ERIC, the Institute of Education Sciences database; and multidisciplinary databases such as Web of Science and Google Scholar. We applied the following search terms in each database:

- Education Source, (work integrated learning) AND outcomes
- Education Source, (work integrated learning) OR wil AND efficacy OR effectiveness
- Education Source, co operative OR cooperative OR co-operative OR co-op AND results OR effects OR outcomes AND education
- Education Source, co-op AND results OR effects OR outcomes AND education AND post-secondary education
- Education Source, internships AND effectiveness OR efficacy OR effective OR success OR outcome AND canada OR canadian OR canadians OR in canada NOT medical OR nursing OR athletic
- ERIC, "work-integrated learning" +canada outcomes peer reviewed only full text
- ERIC, "work-integrated learning" outcomes peer reviewed only full text
- ERIC, "work-Integrated learning"
- ERIC, +quality "work-integrated learning"
- Google Scholar, "work-integrated learning" +canada +policy
- Google Scholar, "work-integrated learning" effectiveness
- Google Scholar, "work-integrated learning" internship
- Google Scholar, "work-integrated learning" internship Canada
- Google Scholar, Author's publication list
- Web of Science, "work integrated learning" AND assessment AND effective
- Web of Science, "work integrated learning" AND waterloo
- Web of Science, "work integrated learning" OR WIL AND Canada
- Web of Science, "work-integrated learning" AND reskilling

- Web of Science, "work-integrated learning" AND Waterloo
- Web of Science, TOPIC "co-op" +learning +Canada
- Web of Science, TOPICS, "co-op" +efficacy +Canada

We then excluded results that included the following terms: "assessment," "medical," "nursing," and "athletic." We excluded "assessment" because these articles focused on how employers and WIL practitioners at post-secondary institutions assess student learning, and we excluded three disciplines in which WIL is conventionally unpaid. We also excluded publications from before 2010. Finally, we excluded studied that focused solely on the economic impacts of WIL participation, as that research is the focus of a separate knowledge synthesis. Once we had run the above search terms in Canada, we repeated these same keywords, looking for relevant literature from the United States, Australia, and New Zealand—countries in which co-op and internships operate similarly to Canada's and in which WIL research is regularly performed.

However, we found that the results generated by this search strategy were often irrelevant to the topic of this study. For example, these searches generated articles that hypothesized the potential benefits that would occur for students in a particular discipline if WIL were to be normalized in that field or described how an individual WIL program in an individual institution evaluated its own quality. There was no way to narrow our search terms to exclude these types of results from our long list. We, therefore, shifted from an exhaustive search strategy to a representative search strategy, from which we sought to identify materials that are representative of most other works in the field of WIL evaluation and outcomes research. Representative search strategies are, by definition, not exhaustive; therefore, the long list that we ultimately developed may have left out some studies that would have fit within our inclusion and exclusion criteria. While our decision to use a **representative search strategy**, therefore, means we may have missed some studies, we determined that the limitations of our attempt at an exhaustive search were too significant to overcome, and so we focused instead on locating the most cited and most recent works from the top publications in the field.

To perform our representative search strategy, we used the following approaches:

1. **Citation tracking**—that is, finding a relevant article and seeing what other articles have cited it.
2. **Citation chaining**—that is, finding a relevant article and seeing what articles it cites.
3. **Representative sampling**—that is, searching within the top journal in the field, *The International Journal of Work-Integrated Learning* (formerly the Asia-Pacific Journal of Cooperative Education), and within resource hubs including CEWIL Canada, the University of Waterloo's Work-Learn Institute, and the Higher Education Quality Council of Ontario.

Using these three approaches, we ultimately developed our long list of 214 items in Zotero.

With this long list in place, we then imported our references to Covidence, a primary screening and data extraction tool. Covidence excluded duplicate references from our long list, yielding 184 studies. We then performed a title- and abstract- screening on these 184 studies, from which we excluded 58 references. Of these 58, most were excluded because they came from countries outside of our five countries of interest (Canada, the United States, the United Kingdom, Australia and New Zealand), but some were excluded because they were summaries of unpublished conference papers or otherwise unrelated to the topic of outcomes of participating in WIL.

The remaining 126 studies then passed to the full-text review stage. At this point, an additional 51 studies were excluded. Of these 51 excluded studies:

- 20 were excluded because they were not related to the topic;
- 14 were excluded because they were published before 2010 or because they drew on studies from outside of our five countries of interest; and
- 17 were excluded for other reasons (e.g., related to outcomes of unpaid WIL or related to the outcomes of participating in an international WIL experience).

The result of this second round of screening was a shortlist of 75 articles related to the research topic. All shortlisted studies are listed below under "References."

Each of these 75 articles was then read and coded by a subject matter expert. Rather than developing a list of standardized codes, we instead coded broadly and inclusively, tagging in Covidence each resource with the type of WIL studied, the country in which the study was performed, and key terms related to the findings. We began to analyze the codes simultaneously with the coding process, looking for themes across codes and thus across the research literature.

After approximately 20% of the coding was completed, we brought in one standardized code, "student perceptions," which we used to code articles that primarily focused on students' own subjective, self-reported experiences. Of the 75 shortlisted resources, 51 (that is, 68%) drew on students' own perceptions of their WIL experience. Once the coding was completed, we analyzed the codes to identify the themes—that is, the types of outcomes associated with students' participation in work-integrated learning, specifically in paid internships and co-ops.

Methodology: Surveys and Survey Analysis

Employer and student "treatment" or SWPP surveys were distributed by the following eight SWPP delivery partners: Information and Communications Technology Council (ICTC), Magnet (at Toronto Metropolitan University), Excellence in Manufacturing Consortium (EMC), ECO Canada, Ontario Chamber of Commerce (OCC), BioTalent Canada, TECHNATION, and Electricity Human Resources Canada (EHRC). The "control" or non-SWPP surveys were distributed by vendor Angus Reid. The two surveys were designed to have identical wording wherever possible. Surveys were distributed from January to February 2023.

Survey samples and response rates are discussed in detail in Section II of the main report. Where direct comparisons between SWPP, non-SWPP WIL, and non-WIL respondents are made, samples are adjusted to improve comparability. Regression analysis controlled for age, hourly pay, ethnicity, major, province, school type (college, university, or polytechnic), full-time/part-time studies, setting (rural/remote), and gender.

Limitations

The majority of the research findings discussed in this report, both in the knowledge synthesis and in the survey analysis, are derived from students' or employers' self-reported data collected through surveys, interviews, and focus group discussions. There are benefits and detriments to using student and employer perceptions to study WIL. On the one hand, studies that examine students' and employers' perceptions are able to develop a nuanced picture of the experience of WIL for this key stakeholder. When investigating students' confidence, sense of belonging, or professional identity, this data can likely only be obtained by asking students to self-report. On the other hand, students—especially when they are surveyed or interviewed before they have experienced working full-time for a number of years—may have a limited or skewed understanding of the skills and experiences that will be significant in their future careers or may not be able to accurately judge their own skills. As MacDonald and colleagues (2014) put it:

When participants self-report, there is always the problem… of them being able to reliably measure or ascertain their ability, as there can be a case of "over inflation." This may be intentional or because participants have an inaccurate appreciation of their ability compared to others. (p. 168)

When possible, the knowledge synthesis integrates self-reported data with other data sources—for example, data collected from institutional databases, from alumni, and from employers of WIL students. Combining results obtained from self-reported data with those obtained from other sources makes the accuracy of the results more trustworthy.