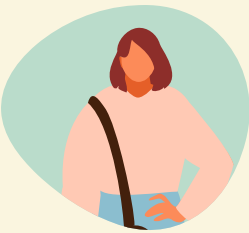


ASSESSING THE VALUE OF CANADAS STUDENT WORK PLACEMENT PROGRAM FOR STUDENTS, EMPLOYERS, AND THE DIGITAL ECONOMY



Research by



Magnet, the Information and Communications
Technology Council, and Orbis



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Preface

Magnet is a digital social innovation platform founded at Ryerson University. Magnet's mission is to accelerate inclusive economic growth for all in Canada by advancing careers, businesses and communities. The Magnet Network includes all relevant stakeholders involved in fostering economic growth and opportunity, including community partners, employers, post-secondary job boards, and job seekers across Canada.

As a not-for-profit, national centre of expertise, ICTC strengthens Canada's digital advantage in the 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 a vast network of industry leaders, academic partners, and policy makers from across Canada, ICTC has empowered a robust and inclusive digital economy for over 25 years.

Orbis is an innovator in career-readiness delivery and development which produces data-driven experiential learning software solutions, research, and analytics that guide post-secondary institutions and industry partners to meet students exactly where they are at today, with exactly what they need for success tomorrow. Together with its partners, Orbis is working toward a future of fulfilled potential, through the potential fulfillment of every graduate.

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Abstract

Work-Integrated Learning (WIL) has been shown to benefit both students and employers and is a well-regarded strategy to strengthen the workforce. The Student Work Placement Program (SWPP) is a large Canadian WIL program, funded by the federal government, that provides subsidies for employers to hire post-secondary students on a short-term basis. The outcomes of participation in SWPP are assumed to be positive, but little research has been conducted to understand who participates in SWPP, why they participate (or do not), and how SWPP impacts students or employers. Moreover, not much data is available about SWPP impacts by placement type or sector. This study uses a survey of SWPP participants to fill this research gap on student placements in Canada's rapidly scaling digital economy. This survey data allows for the development of an economic model that estimates the costs and benefits of SWPP participation for both employers and students, and finds that both groups receive economic benefit exceeding the subsidy or salary they receive. The survey also allows for comparison between SWPP participants and non-SWPP participants, painting a clearer picture of who participates in SWPP and why they do so. This research suggests that SWPP, like WIL more broadly, is an effective model for strengthening Canada's digital economy labour force and provides value to youth and employers alike. Further efforts to expand and deepen the program's impact would be beneficial.

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Glossary of Key Terms

This glossary presents an overview of terminology used in the report.

Digital Economy: A classification that includes both workers employed in largely digital or technical roles across all sectors of the economy (e.g., a data scientist working for an airline), and workers employed in non-technical roles within technology companies (e.g., an accountant working at a software company).

Student Work Placement Program (SWPP): This program brings together employers, students, and post-secondary school stakeholders to create quality work-integrated learning (WIL) opportunities. The program benefits employers by providing a wage subsidy to hire post-secondary students, and students benefit from quality work experience so they can secure employment in their chosen fields of study.

Work-Integrated Learning (WIL): A form of curricular experiential education that formally integrates a student's academic studies with quality experiences within a workplace or practice setting. WIL experiences include an engaged partnership of at least: an academic institution, a host organization, and a student. WIL can occur at the course or program level and includes the development of student learning objectives and outcomes related to employability, personal agency, knowledge and skill mobility and life-long learning."¹

1 Co-operative Education and Work-Integrated Learning Canada, "What is Work-integrated Learning (WIL)?" CEWIL Canada, 2021: <https://www.cewilcanada.ca/CEWIL/About%20Us/Work-Integrated-Learning/CEWIL/About-Us/Work-Integrated-Learning.aspx?hkey=ed772be2-00d0-46cd-a5b8-873000a18b41>

Executive Summary

Amid unprecedented times and a rapidly changing economy, young people face increasing uncertainty in the labour force. It is now more important than ever to help students succeed as they look to join the labour market. Accelerated digitization is seeing information and communications technology and digital economy fields emerge strongly post-pandemic, creating significant labour market demand for new entrants. Work-Integrated Learning (WIL) is increasingly considered to be an effective practice—combining formal learning with real workplace experiences—to help students gain employability skills and build connections to the workforce, and for employers to access new talent.

Launched in 2017, the Student Work Placement Program (SWPP), funded by Employment and Social Development Canada, provides resources for Canadian employers to hire students and provide them with work experience during their studies. The SWPP is administered by a number of “Employer Delivery Partners” organizations, including Magnet and the Information and Communications Technology Council (ICTC). The 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 SWPP has created thousands of new opportunities for students and employers across the country, there is little evidence about the direct impacts of SWPP participation on students and employers. Furthermore, given the increasing importance of supporting youth employment while recovering from the pandemic, there is reason to develop a better understanding of how SWPP contributes to building and strengthening talent pipelines in the new economy.

This report is an evaluation of the impacts of SWPP on students and employers in the Canadian digital economy, based on data from a sample of summer and fall Magnet and ICTC SWPP participants who participated in the program in 2020. Using a mixed method quasi-experimental research design², this study developed an economic model to assess the financial impacts (or financial return on investment) of SWPP. It also leverages primary research via employer and student surveys to present firmographic, demographic, and attitudinal insights about SWPP. The survey and corresponding economic model led to the following findings:

- **Both employers and students participating in SWPP receive economic benefits beyond the subsidy or salary that they (respectively) receive.** These benefits are represented by financial incentives and other externalities.
- **Both employers and students reported high levels of satisfaction with SWPP:** 91.5% of all employers participating in SWPP stated that they had a good experience with the program, while 92.1% of students described the quality of their placement as good.
- **During COVID-19, SWPP was effective in supporting smaller businesses in the digital economy.** SWPP employers are more likely to be startup or seed-stage businesses, to be younger, have lower profits, and to have hired students during the pandemic.

2 See Appendix for details

- **Students who participated in SWPP are more optimistic** about their future careers, academic programs, and skill sets.
- **Francophone students may benefit more from SWPP than their Anglophone peers.** They were more likely to receive job offers through SWPP and were expected to earn less if they had not participated in SWPP.
- **Efforts should be made to focus on engaging and attracting more diverse SWPP participation.** Fewer students with disabilities, individuals who identify as 2SLGBTQIA, and newcomers to Canada participate in SWPP,³ while SWPP students tend to come from families with higher incomes.

Overall, this evaluation provides new information about the immediate impacts of the SWPP, via an analysis of SWPP placements administered by ICTC and Magnet. This evaluation provides important information to better understand the broader SWPP program and provides new evidence regarding the perceptions of such programs from the perspective of employers and students. WIL programs around the world have proven very successful, and these results suggest that SWPP is no exception. To enhance the reach of SWPP and the opportunities provided by it, there is a shared responsibility for SWPP providers, post-secondary institutions, employers, and policy makers to continue to support the program, while paying particular attention to equity and accessibility.

The growth in digital transformation across the economy will continue to accelerate demand for digital talent. Recent research by ICTC finds that by 2025, Canada will see a demand for an additional 250,000 digitally skilled workers.⁴ Expanding the SWPP for the foreseeable future is warranted across Canada; doing so will not only continue to support business growth and expand overall economic prospects but also offer high-quality employment and training opportunities for Canada's youth.

3 This is in part because international students are ineligible for SWPP. Eligibility is limited to Canadian citizens, permanent residents, or persons to whom refugee protection has been conferred under the Immigration and Refugee Protection Act.

4 Ivus, Maryna and Akshay Kotak, "Onwards and Upwards - Digital Talent Outlook 2025," Information and Communications Technology Council (ICTC), 2021: <https://www.ictc-ctic.ca/wp-content/uploads/2021/08/digital-talent-outlook-for-2025.pdf>

Introduction

WIL programs are a key workforce development strategy in Canada, and there is strong evidence that they produce favourable outcomes for youth employment. While the term WIL encompasses a variety of practicums, internships, and other forms of experiential learning, this report focuses specifically on the SWPP, an Employment and Social Development Canada initiative⁵ that incentivizes employers to offer WIL “placements.” Under this initiative, students work for an employer in a short-term role (typically four months), and employers receive the benefit of that labour and up to a 75% wage subsidy, to a maximum of \$7,500, per student per semester (based on guidelines during 2020-2021).⁶ These subsidies are administered through several employer delivery partners⁷—organizations that represent employers in various industries and develop partnerships with employers and educators. Bolstered by \$73 million from 2017-2021,⁸ the SWPP benefits tens of thousands of students annually. A logic model of the SWPP is detailed in Figure 1.

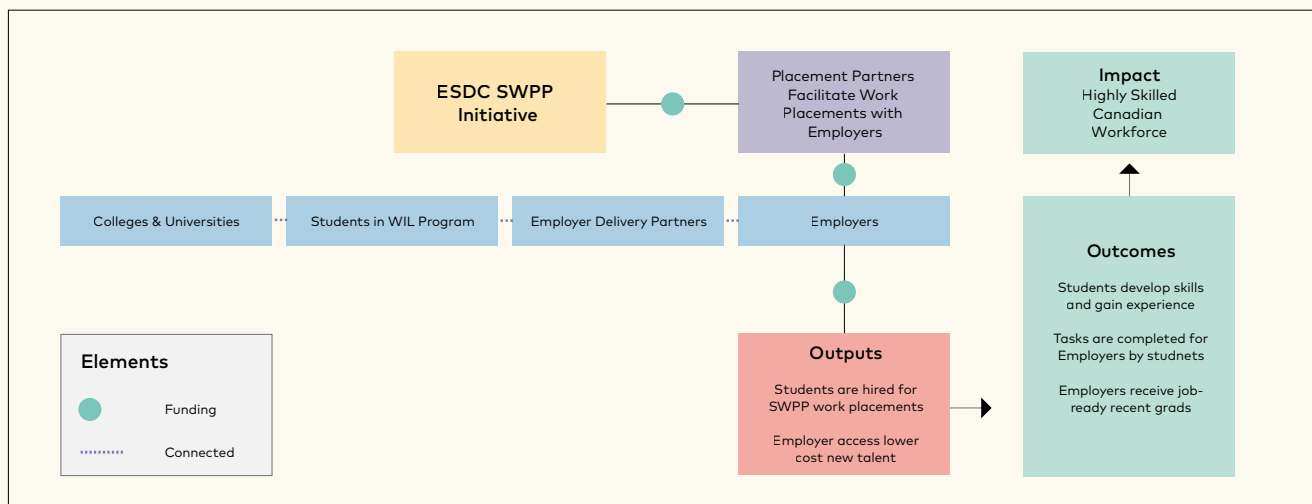


Figure 1. SWPP Logic Model

While research suggests that students who have completed WIL programs are better positioned for employment opportunities post-graduation, there are still significant gaps in knowledge surrounding tangible and measurable impacts of WIL. More specifically, there has been minimal investigation into the role of SWPP, particularly in terms of its influence on students and employers. Due to the COVID-19 pandemic, Canadian employers cancelled or postponed more than a third of WIL placements in 2020,⁹ threatening the professional development of youth across the country and

5 The SWPP saw funding of \$73 million from 2017-2021

6 “The Innovative Work-Integrated Learning Initiative,” Employment and Social Development Canada, April 30, 2021: <https://www.canada.ca/en/employment-social-development/programs/work-integrated-learning.html>

7 Two of the organizations authoring this report, Magnet and ICTC, are SWPP delivery partners.

8 “Government of Canada’s SWPP (Student Work Placement Program) Co-op Subsidy,” University of British Columbia Science Co-op, <https://sciencecoop.ubc.ca/employers/salaries/swpp#:~:text=SWPP%20Summary,students%20who%20meet%20eligibility%20requirements>

9 “COVID-19 pandemic: Impacts on the work placements of postsecondary students in Canada,” Statistics Canada, May 25, 2020: <https://www150.statcan.gc.ca/n1/pub/45-28-0001/2020001/article/00022-eng.htm>

limiting a unique and valuable labour source for employers. As part of its pandemic response, the Government of Canada temporarily loosened restrictions on SWPP funding eligibility and substantially increased the number of placements funded to encourage employers to take on more students for WIL placements. Because this study took place during the pandemic, it investigates some of the effects of the pandemic on SWPP alongside a thorough analysis of the experiences of SWPP participants¹⁰ in the Magnet and ICTC programs. By extension, this analysis offers a more nuanced understanding of WIL and its impacts on students, employers, and the digital economy.

10 This includes a survey of 233 students and 444 employers who participated in Magnet or ICTC SWPP programs, as well as survey control groups of 253 students and 508 employers.

Section I: Literature Review

Incentives for Participation in WIL

Employers

Employers participate in WIL for a wide variety of reasons. Some incentives for participation in WIL entail corporate responsibility, staff development (for example as an opportunity to supervise), accessing new ideas, and fostering relationships with universities.^{11, 12} Other incentives for employer participation in WIL include enhanced productivity and the benefits associated with students "introducing fresh and different ideas."¹³ A survey of Ontario employers found that the most commonly cited reason for WIL participation (the top reason for a quarter of respondents) was to develop workforce skills for their industry. More than one in five respondents cited WIL as a way to pre-screen potential new hires. Other commonly cited reasons included giving back to the community, bringing in specific skills, and managing short term or special projects.¹⁴

Students

WIL is increasingly popular among students in part because it gives them a labour force advantage. For example, research suggests that "students increasingly need to differentiate themselves in a crowded job market through personal added value such as relevant experience, skills, and abilities."¹⁵ In interviews with UK students, higher education researchers Brenda Little and Lee Harvey found that students want to participate in WIL to take a break from academics, earn new experiences, "test" a career option, and gain work experience missing from their academic studies.¹⁶ Another large motivator for students to participate in WIL is getting paid. According to a 2018 Canadian University Survey Consortium survey of nearly 15,000 students, 11% of Canadian students used co-op programs or other experience related to their program as a source of financing.¹⁷

11 Georgina Atkinson, "Work-based learning and work-integrated learning: fostering engagement with employers," National Centre for Vocational Education Research, 2016: <https://files.eric.ed.gov/fulltext/ED568154.pdf>

12 "Work Integrated Learning: Developing the workforce of the future," Australian Chamber of Commerce and Industry, <http://www.iru.edu.au/wp-content/uploads/2015/06/wil-2011.pdf>

13 Ferns, Sonia, Matthew Campbell and Karsten Zegwaard, "Chapter 1: Work Integrated Learning," Higher Education Research and Development Society of Australia, 2014: https://researchcommons.waikato.ac.nz/bitstream/handle/10289/9196/Zegwaard_WIL%20Guide%20June%202014FINAL_22June2014.pdf?sequence=3&isAllowed=y

14 Sattler, Peggy, "Work-Integrated Learning in Ontario's Postsecondary Sector," Higher Education Quality Council of Ontario, 2011: <https://heqco.ca/wp-content/uploads/2020/03/WIL1E.pdf>

15 Brooks, Ruth and Paul Youngson, "Undergraduate work placements: an analysis of the effects on career progression," *Studies in Higher Education*, 2016: <https://www.tandfonline.com/doi/abs/10.1080/03075079.2014.988702>

16 Little, Brenda and Lee Harvey, "Learning through work placements and beyond," Higher Education Academy's Work Placements Organisation Forum, 2006: https://hecsu.ac.uk/assets/assets/documents/Learning_through_work_placements_and_beyond.pdf

17 "2018 Graduating Student Survey Master Report," Canadian University Survey Consortium, June 2018: https://cusccreu.ca/?page_id=32&lang=en

Further, for those 11%, income from co-op work was the most significant source of financing for their education.¹⁸ Figure 2, displays the results of a survey of Ontario students and highlights motivations for participating in WIL. Primary motivations align clearly with the primary features of WIL: that it offers work experience and helps students build their resumes to become more employable. According to the same survey, many students that bypassed WIL experiences later regretted it: “fully half of the non-WIL university students (49%) reported that they would choose WIL if they could do their PSE program over.”¹⁹ Interestingly, these students expressed that earning money was the lowest ranked motivator for engaging in WIL.

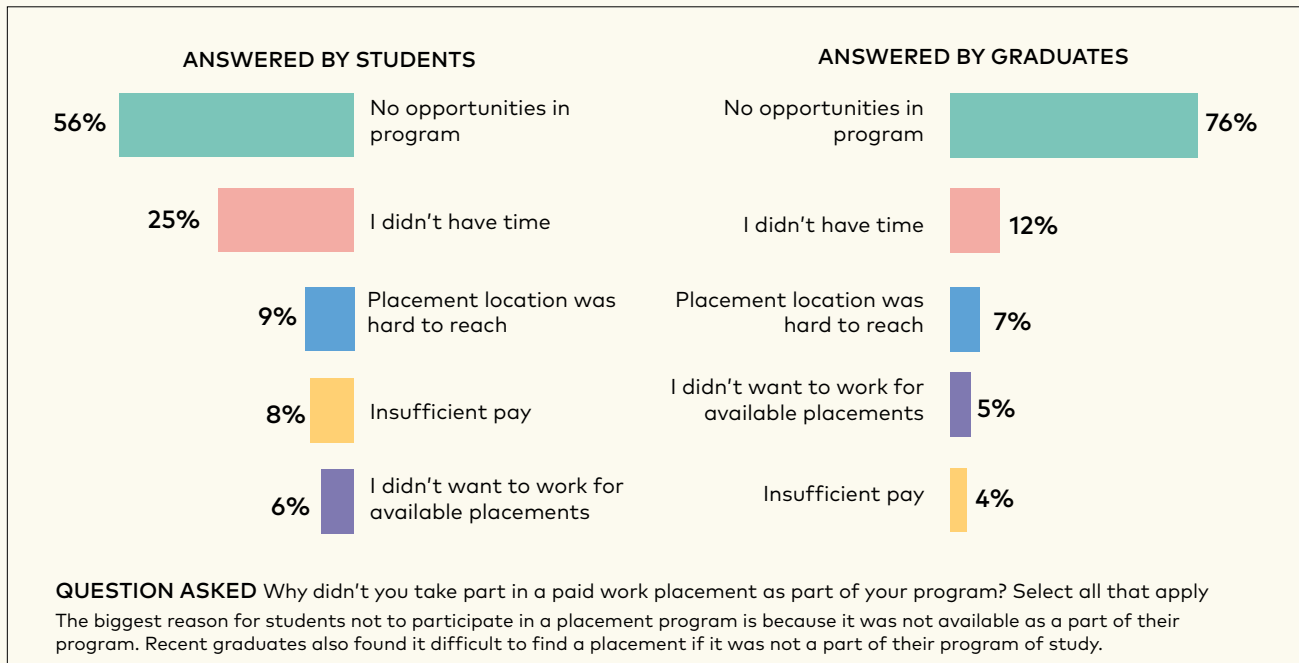


Figure 2 Motivations for participating in WIL (WIL n= 2803, “Would-be” WIL n= 1480)²⁰

Post-Secondary Institutions

Despite the costs of administering WIL programs, post-secondary institutions are increasingly beginning to offer WIL opportunities to their students.²¹ As WIL grows in scope and recognition at many Canadian educational institutions, the benefits are clear—in fact, in recent years, educational institutions have been criticized for not providing sufficient practical training.²²

18 Ibid.

19 Ibid.

20 Sattler, Peggy and Julie Peters, “Work-Integrated Learning in Ontario’s Postsecondary Sector: The Experience of Ontario Graduates” Higher Education Quality Council of Ontario, 2013: http://www.heqco.ca/SiteCollectionDocuments/WIL_Experience_ON_Graduates_ENG.pdf

21 Tamburi, Rosanna, “Co-op programs are popular and growing at Canadian universities,” University Affairs, 2014: <https://www.universityaffairs.ca/news/news-article/co-op-programs-are-popular-and-growing-at-canadian-universities/>

22 Chamorro-Premuzic, Tomas and Becky Frankiewicz, “Does Higher Education Still Prepare People for Jobs?,” Harvard Business Review, 2019: <https://hbr.org/2019/01/does-higher-education-still-prepare-people-for-jobs>

Academic institutions have both a success-based and a purpose-driven imperative to ensure that their students succeed in work. The success-based imperative is that students pay for a service to enhance their earning potential and are more likely to attend universities that can offer this. More broadly, because students benefit from WIL, they may be more likely to want to attend institutions that offer WIL programs (especially if they are known to offer high-quality education). Educational institutions are designed, at least in part, to help prepare future generations for the workplace, and WIL programs are proven to help students to gain experience and develop workforce skills and networks.

Obstacles to Participation in WIL

Despite the increasing popularity of WIL, some obstacles to participation exist for all stakeholders. The Business/Higher Education Roundtable (BHER)²³ categorizes the following barriers to the implementation of work-integrated learning: cost, administrative burdens, supply and demand challenges, and the difficulty of measuring outcomes. The COVID-19 pandemic has, of course, presented additional barriers to participation (and exacerbated some existing barriers) for students, educational institutions, and employers.

Employers

Even if placements are subsidized (as in the case of SWPP), employers—particularly smaller ones—may see WIL placements as costly. Additionally, WIL placements often require more training, supervision, and attention than employees that already have some workplace experience; therefore, insufficient supervisory capacity has been identified as a key barrier to WIL participation among Canadian employers.²⁴ Similarly, in a survey of Australian employers, insufficient resources and supervision time were identified as the top two barriers to participation in WIL.²⁵ Uncertainty about WIL program structures, options, or functions has also been cited as a barrier to WIL participation.²⁶ 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 they are unable to participate in long-term projects.²⁷

23 A 27-member roundtable established by the Business Council of Canada

24 "Work-integrated learning in the post COVID-19 World," The Conference Board of Canada, 2021: https://www.conferenceboard.ca/temp/e96c2154-64ec-48e8-931a-15e33c6293df/10942_Work%20Integrated%20Learning_IP.pdf

25 "Engaging Employers in Work Integrated Learning: Current State and Future Priorities," PhillipsKPA, 2014: https://www.phillipskpa.com.au/dreamcms/app/webroot/files/files/PhillipsKPA_WIL%20Research%20Report.pdf

26 Jackson, Denise et al., "Employer understanding of Work-Integrated Learning and the challenges of engaging in work placement opportunities," *Studies in Continuing Education*, 2017: <https://core.ac.uk/download/pdf/84887974.pdf>

27 Ibid.

Students

Students face a variety of barriers to participating in WIL. For example, co-op²⁸ work terms are often performed during an academic semester, meaning that co-op students often take more than four years to graduate.^{29, 30} While work experience is gained, delaying graduation may be seen as a cost by some students. Some students avoid WIL because they are unsure of placement quality.³¹ 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.

Barriers that are often cited in limiting student WIL participation include having to complete the associated paperwork and having to pay for participation in WIL (although WIL itself is paid, up-front participation fees may discourage participation for some students).³² Students may also find it difficult to relocate to be closer to a placement, or may choose not to accept a placement that requires moving for a job that will last only a few months,³³ which may disproportionately limit WIL in rural and remote communities.

Figure 3 shows survey responses from a representative sample of 1000 young Canadians and highlights some of the barriers to student participation in WIL, with a heavy emphasis on WIL simply not being available in their academic program.

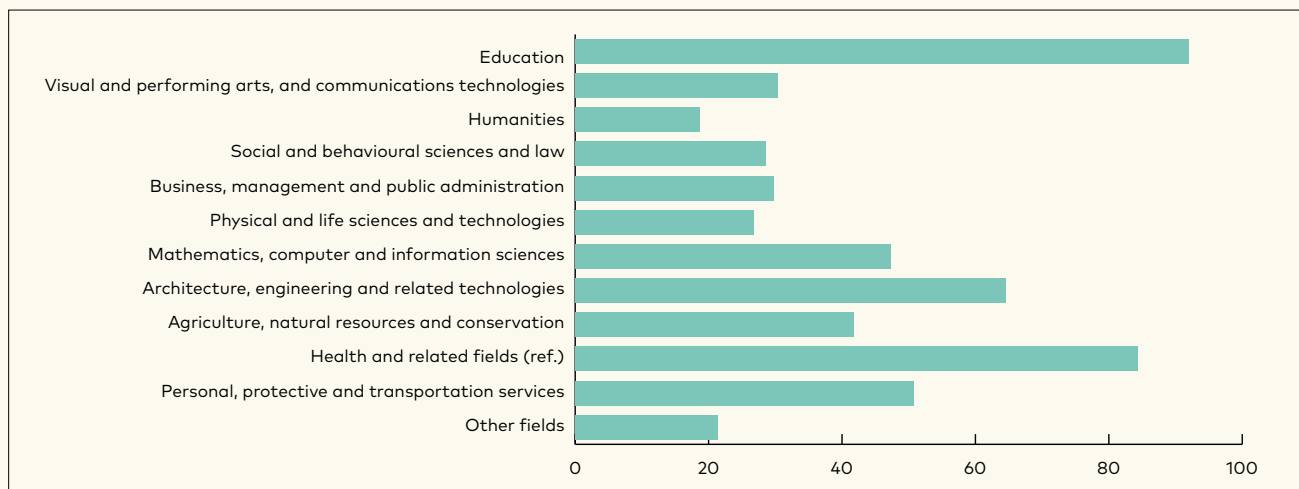


Figure 3. Reason for not taking part in placement³⁴

28 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.

29 "Arts Co-op Program," The University of British Columbia, <https://artscoop.ubc.ca/undergraduate/co-op-program/>

30 "About co-op," University of Waterloo, <https://uwaterloo.ca/co-operative-education/about-co-op>

31 Brooks, Ruth and Paul Youngson, "Undergraduate work placements: an analysis of the effects on career progression," *Studies in Higher Education*, 2016: <https://www.tandfonline.com/doi/abs/10.1080/03075079.2014.988702>

32 R.A. Malatest & Associates Ltd., "Barriers to Work-integrated Learning Opportunities," Higher Education Quality Council of Ontario, 2018: <https://heqco.ca/pub/barriers-to-work-integrated-learning-opportunities/>

33 Academica Group, "Taking the Pulse of Work-Integrated Learning in Canada," Business/Higher Education Roundtable, 2016: <https://www.bher.ca/sites/default/files/documents/2020-08/BHER-Academica-report-full.pdf>

34 "Employment Transitions: Canadian Alliances of Student Associations Study of 1,000 Canadians Aged 19 to 29," Abacus Data, July 2018: https://d3n8a8pro7vhmx.cloudfront.net/casacaec/pages/2620/attachments/original/1530649297/Employment_Transitions_Poll_2018.pdf?1530649297

Post-Secondary

Post-secondary institutions, which typically serve as the convenors of WIL, must invest in staff and resources to build and support relationships with employers.³⁵ Post-secondary institutions often require large co-op offices with numerous staff in multiple departments simply to keep up with WIL programs. Post-secondary institutions must not only manage student participation, but they must convince employers and students of the value of participating in WIL. Doing so can become a significant administrative and stakeholder relations burden. Universities may also find it difficult to suitably assess student WIL outcomes, particularly given the range of WIL programs, formats, delivery partners, and stakeholders.³⁶

University faculty may find it challenging to integrate classroom and workplace learning or may otherwise be uninterested in arranging industry placements for students. According to one survey, “a lack of recognition for WIL activities in promotion decisions was also a key challenge”³⁷ to faculty participating in WIL. Faculty members have acknowledged that they often do not engage directly with community partners.³⁸

Without faculty interest, WIL becomes the responsibility of university administrators, who may not be best suited to aligning WIL placements with coursework. Further, some research suggests that beyond simply arranging for WIL, educational institutions have little impact on the outcomes of WIL experiences: “There is no evidence that the emphasis given by university departments to the teaching, learning and assessment of employability skills has a significant effect on... labour market outcomes”³⁹ of WIL students. To address some of the logistical matching challenges of connecting students to employers at scale and across Canada, ESDC has invested in a shared platform, Outcome Campus Connect, that allows employers to send WIL postings that can target and recruit student talent from subscribing public post-secondary schools in Canada.

Entry-Level Opportunities, Roles, and Skill Needs in the Digital Economy

There is significant demand for entry-level workers in Canada: “In 2016, less than one-half (48%) of job vacancies in Canada required no previous work experience.”⁴⁰ In an interview of digital economy employers, only 16% said that entry-level roles were difficult to source for, compared to 54% for mid-level roles.⁴¹

35 Academica Group, “Taking the Pulse of Work-Integrated Learning in Canada,” Business/Higher Education Roundtable, 2016: <https://www.bher.ca/sites/default/files/documents/2020-08/BHER-Academica-report-full.pdf>

36 Ibid.

37 Ibid.

38 Ibid.

39 Mason, Geoff, Gareth Williams, and Sue Cranmer, “Employability Skills Initiatives in Higher Education: What Effects do They Have on Graduate Labour Market Outcomes?” Education Economics, 2009.

40 Marie Drolet, “Getting your foot in the door: A look at entry-level job vacancies in Canada,” Statistics Canada, 2017: <https://www150.statcan.gc.ca/n1/pub/75-006-x/2017001/article/54898-eng.htm>

41 Cutean, Alexandra, Rosina Hamoni, Ryan McLaughlin, and Zhenzhen Ye, “Canada’s Growth Currency: Digital Talent Outlook 2023,” Information and Communications Technology Council, 2019: <https://www.ictc-ctic.ca/wp-content/uploads/2019/11/canada-growth-currency-2019-FINAL-ENG.pdf>

It is worth noting that despite the generally positive estimation of WIL's effects in Canada, "there is little [information] concerning the differential effects by level of education and field of study."⁴² There is also limited data regarding the types of roles offered to WIL students in the digital economy, or the differential effects of WIL placements in the digital economy as opposed to other sectors. Nonetheless, Figure 4 depicts co-op participation rates by discipline for students in 2015.

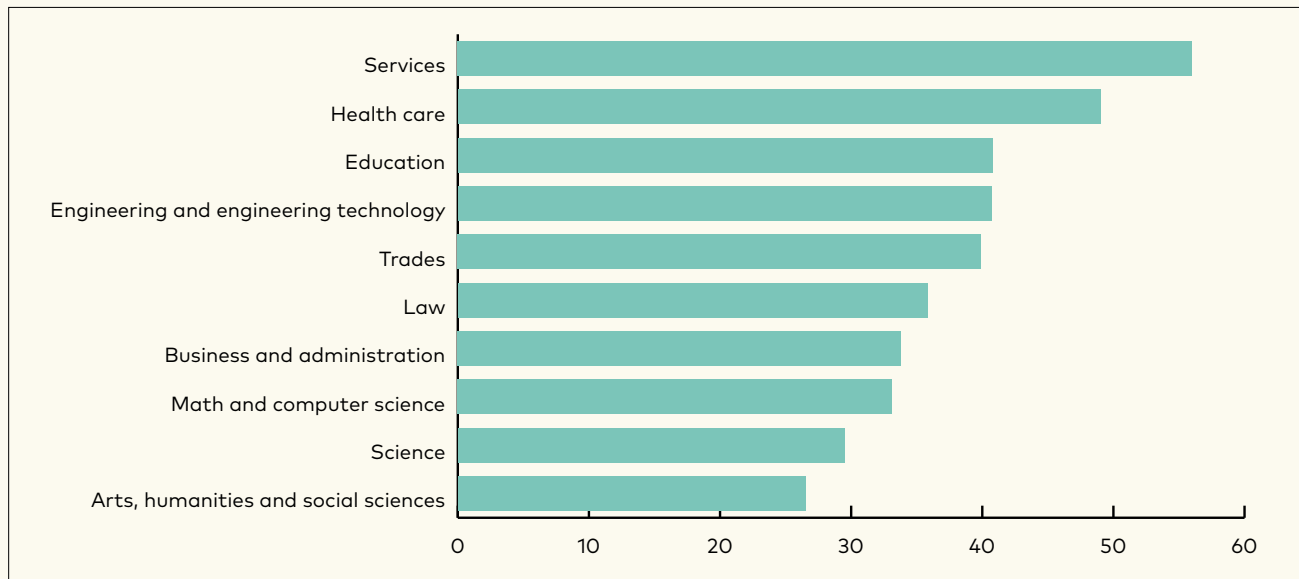


Figure 4. Bachelor's degree WIL participation by subject area.⁴³

A 2019 ICTC report⁴⁴ suggests that the most in-demand occupations across the digital economy.

The most in-demand digital roles were:

- Software Developers
- Data Scientists
- Data Analysts
- UX/UI Designers
- Full stack Developers
- Cybersecurity Analysts
- DevOps Engineers
- Machine Learning Engineers
- Database Administrators
- IT Support Specialists

On the business side, the most in-demand jobs were:

- Business Development Managers
- Project Managers
- Business Analysts
- Digital Marketers
- Researchers

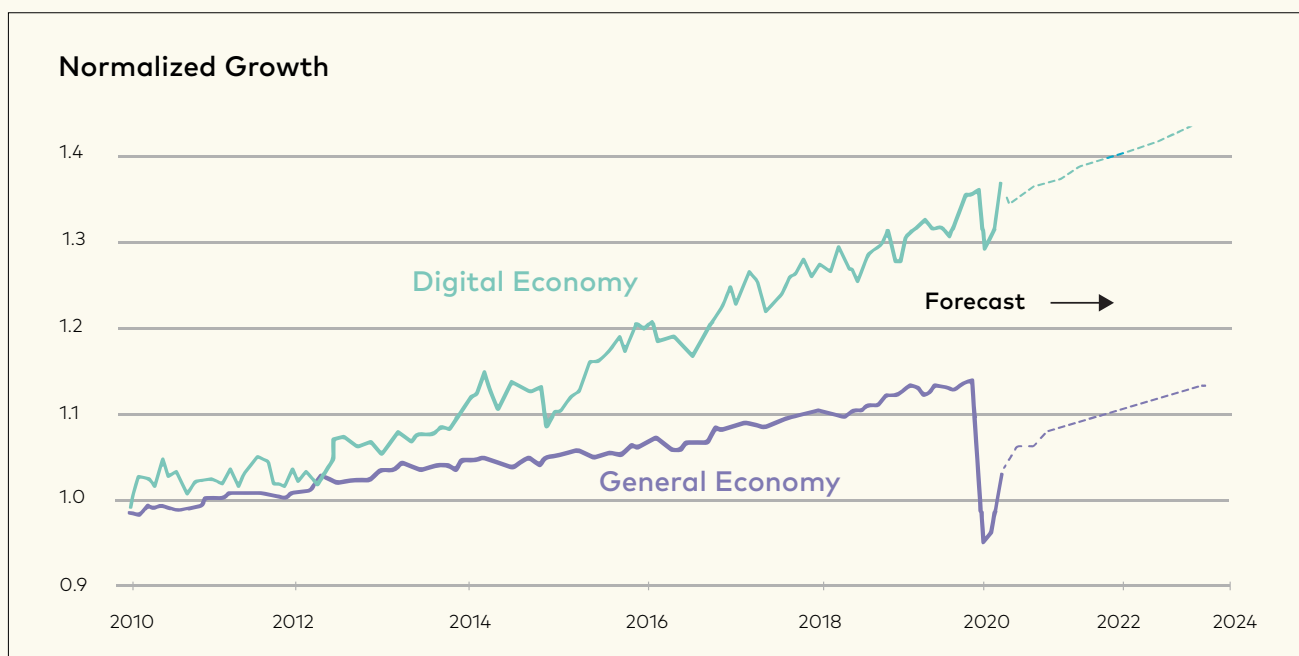
42 Ibid.

43 Galarneau, Diane, Mark Kinack, and George Marshall, "Work-integrated learning during postsecondary studies, 2015 graduates," Statistics Canada, May 2020: <https://www150.statcan.gc.ca/n1/pub/75-006-x/2020001/article/00003-eng.htm>

44 Cutean, Alexandra, Rosina Hamoni, Ryan McLaughlin, and Zhenzhen Ye, "Canada's Growth Currency: Digital Talent Outlook 2023," Information and Communications Technology Council, 2019: <https://www.ictc-ctic.ca/wp-content/uploads/2019/11/canada-growth-currency-2019-FINAL-ENG.pdf>

Pandemic Effects on WIL

Research in the *International Journal of Work-Integrated Learning* suggests that the pandemic “impacted student learning, program delivery, risk management, staff capability, and industry engagement, and posed significant challenges for institutions.”⁴⁵ As is the case with most employment in Canada, WIL positions have been significantly impacted by the COVID-19 pandemic. Using a crowdsourced data collection of nearly 100,000 Canadian students, Statistics Canada found that “over one-third (35%) of participants had a work placement cancelled or delayed as a result of the COVID-19 pandemic.”⁴⁶ Figure 5 shows how COVID-19 influenced work placements in various fields, although the distinctions between fields of study do not necessarily identify digital economy placements. *Figure 5. Delayed WIL placements due to COVID-19. Source: Statistics Canada*



Despite the large number of impacted students, Figure 6 suggests that, on average, digital economy jobs have been far less impacted by COVID-19 than the rest of the Canadian economy. Associated WIL positions in the digital economy likely follow similar patterns,⁴⁷ but this cannot be ascertained with certainty due to a lack of available data. It is unclear if the effects described here will remain beyond the duration of the pandemic.

45 Kay, Judie, Norah McRae, and Leoni Russell, “Two institutional responses to work-integrated learning in a time of COVID-19: Canada and Australia,” *International Journal of Work-Integrated Learning*, 2020: <https://files.eric.ed.gov/fulltext/EJ1271564.pdf>

46 “COVID-19 pandemic: Impacts on the work placements of postsecondary students in Canada,” Statistics Canada, May 25, 2020: <https://www150.statcan.gc.ca/n1/pub/45-28-0001/2020001/article/00022-eng.htm>

47 Ivus, Maryna, Akshay Kotak, and Ryan McLaughlin, “The Digital-Led New Normal: Revised Labour Market Outlook for 2022,” Information and Communications Technology Council, 2020: <https://www.ictc-ctic.ca/wp-content/uploads/2020/08/Outlook-ENG-FINAL-8.24.20.pdf>

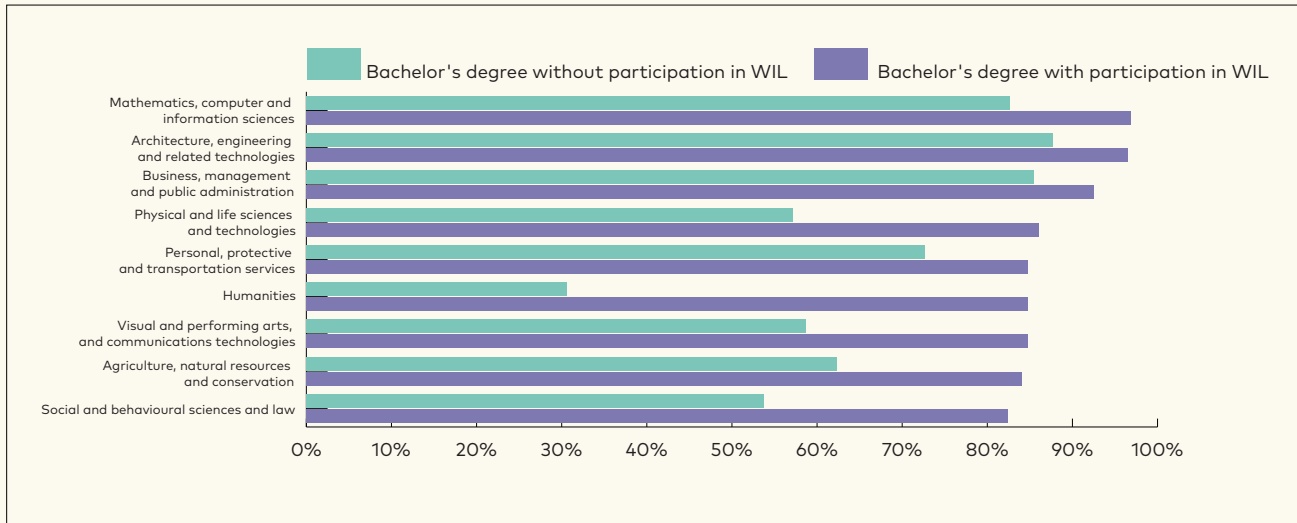


Figure 6. Normalized digital and general economy. Source: ICTC

Outcomes of Participation in WIL for Students

Participation in WIL has been shown to lead to better academic performance for students, even accounting for selection bias (i.e., better students choosing to do work placements).^{48, 49} One study found that 40% of WIL students improved their final grade classification.⁵⁰

WIL students are also more likely to earn a higher starting salary after graduating.⁵¹ In Canada, it is estimated that "three years after graduation, co-op participants have incomes about \$2,000 to \$4,000 higher than non-participants."⁵² A study of UK students found WIL to "have clear positive effects on the ability of graduates to secure employment in "graduate-level" jobs,"⁵³ highlighting that WIL students were not only more likely to find work within six months of graduation, but to find appropriate work after graduation.⁵⁴ In part, this is likely because WIL programs help build student social and professional networks.⁵⁵ A survey of 2015 graduates in Canada (Figure 7) found that WIL students were more likely to have work related to their field of study.

48 Jones, Chris, and Helen Higson, "Work Placements and Degree Performance: Do Placements Lead to Better Marks or do Better Students do Placements? How Can we Incorporate Findings into Wider Practice," Aston Business School, 2011: https://publications.aston.ac.uk/id/eprint/27285/1/Work_placements_and_degree_performance.pdf

49 Gomez, Stephen, David Lush, and Margaret Clements, "Work placements enhance the academic performance of bioscience undergraduates," *Journal of Vocational Education and Training*, 2004: <https://www.tandfonline.com/doi/pdf/10.1080/13636820400200260>

50 Brooks, Ruth and Paul Youngson, "Undergraduate work placements: an analysis of the effects on career progression," *Studies in Higher Education*, 2016: <https://www.tandfonline.com/doi/abs/10.1080/03075079.2014.988702>

51 Ibid.

52 Wyonch, Rosalie, "Work-Ready Graduates: The Role of Co-op Programs in Labour Market Success," CD Howe Institute, 2020: https://www.cdhowe.org/sites/default/files/attachments/research_papers/mixed/Commentary%20562.pdf

53 Mason, Geoff, Gareth Williams, and Sue Cranmer, "Employability Skills Initiatives in Higher Education: What Effects do They Have on Graduate Labour Market Outcomes?" *Education Economics*, 2009.

54 Ibid.

55 Mate, Susan, and Maureen Ryan, "Learning through work: How can a narrative approach to evaluation build students' capacity for resilience?" *Asia-Pacific Journal of Cooperative Education*, 2015: <https://files.eric.ed.gov/fulltext/EJ1113541.pdf>

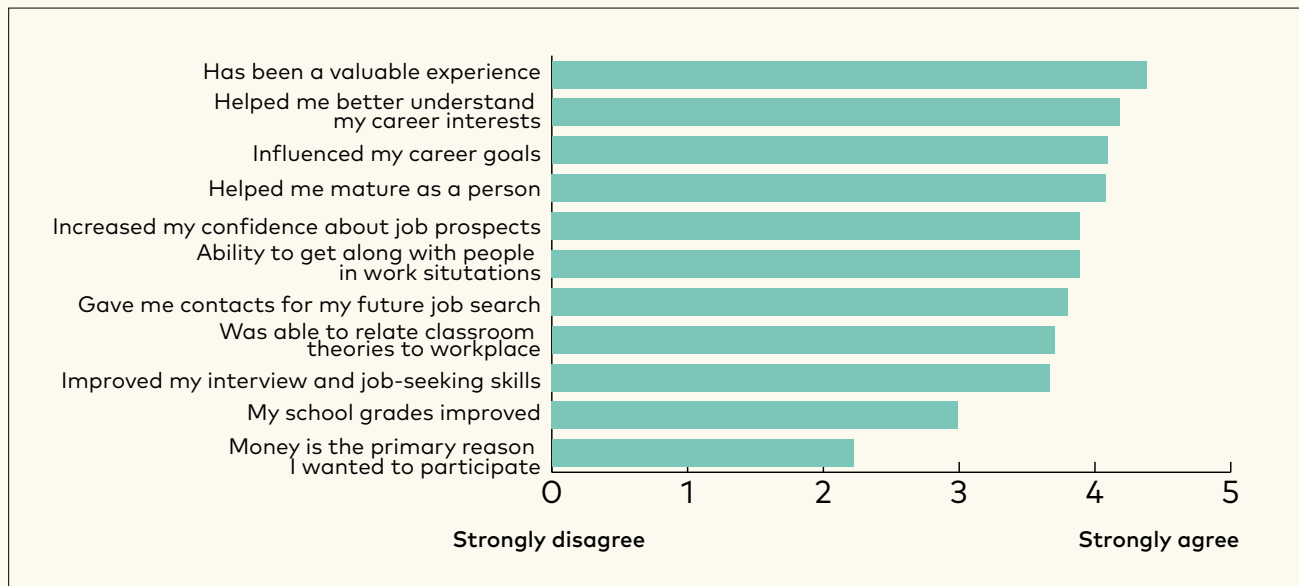


Figure 7. Jobs related to field of study by WIL participation⁵⁶

Employers and students both identify that WIL improves student skill sets. Commonly cited skills developed during placements included oral communication, confidence, personal organization, and knowledge of particular subject matters.⁵⁷ In addition to developing skills, WIL students earn experience that helps to inform their career decisions and directions. According to a survey of Ontario post-secondary students, respondents felt that WIL had helped them to understand career interests, had influenced career goals, and made them more mature, as seen in Figure 8. Emerging research suggests that WIL is critical for “professional identity formation” among students.⁵⁸

56 Galarneau, Diane, Mark Kinack, and George Marshall, “Work-integrated learning during postsecondary studies, 2015 graduates,” Statistics Canada, May 2020: <https://www150.statcan.gc.ca/n1/pub/75-006-x/2020001/article/00003-eng.htm>

57 Little, Brenda and Lee Harvey, “Learning through work placements and beyond,” Higher Education Academy’s Work Placements Organisation Forum, 2006: https://hecsu.ac.uk/assets/assets/documents/Learning_through_work_placements_and_beyond.pdf

58 Trede, Franziska, “Role of work-integrated learning in developing professionalism and professional identity,” Asia-Pacific Journal Cooperative Education, 2012: https://www.ijwil.org/files/APJCE_13_3_159_167.pdf

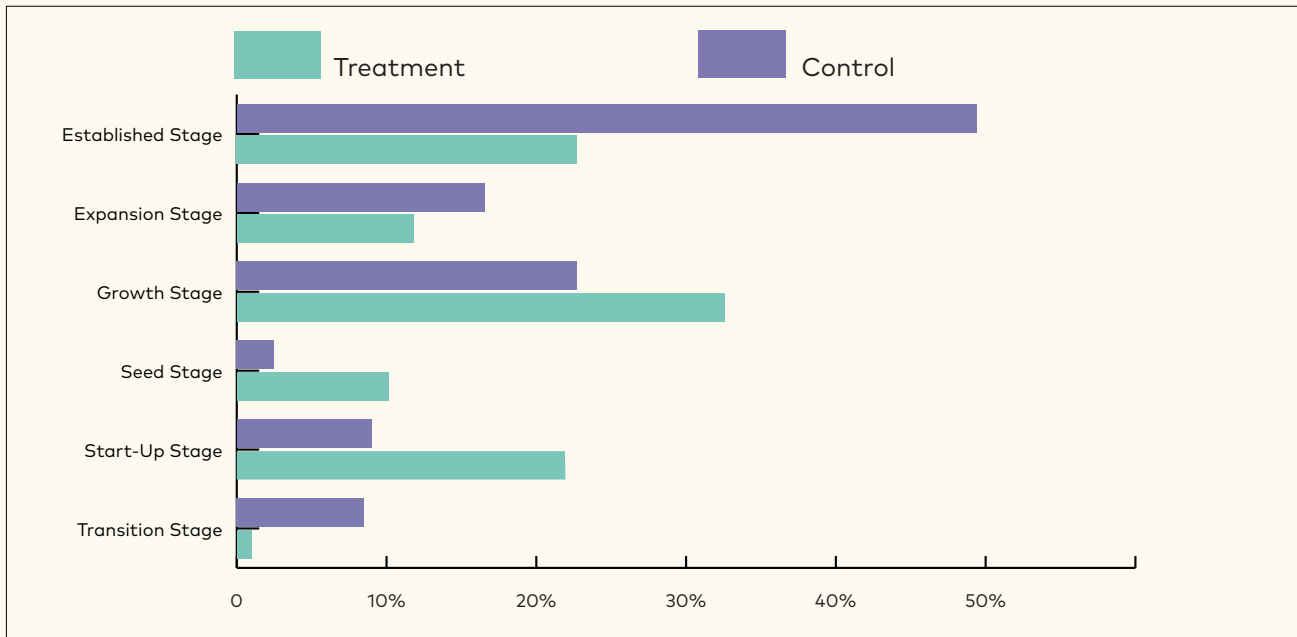


Figure 8. Benefits of WIL according to students⁵⁹

Unfortunately, the many benefits of participation in WIL for students are not always as pronounced for underrepresented populations.⁶⁰ 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.”⁶¹ A study of 55 Canadian institutions found that only 18% referred to any form of disability support for WIL.⁶² Further, international students are more likely to have a difficult time securing a WIL placement.⁶³

Outcomes of Participation in WIL for Employers

Details about the outcomes of employer participation in WIL are limited. Still, employers are often satisfied with their hires: those who offer WIL programs are more likely to hire students with WIL experience after graduation, especially students who worked for them previously.⁶⁴ In part, the following sections aim to further investigate outcomes of employer participation in WIL.

59 Sattler, Peggy, and Julie Peters, “Work-Integrated Learning in Ontario’s Postsecondary Sector: The Experience of Ontario Graduates,” Academia Group, Inc., 2013: https://heqco.ca/wp-content/uploads/2020/03/WIL_Experience_ON_Graduates_ENG.pdf

60 Wyonch, Rosalie, “Work-Ready Graduates: The Role of Co-op Programs in Labour Market Success,” CD Howe Institute, 2020: https://www.cdhowe.org/sites/default/files/attachments/research_papers/mixed/Commentary%20562.pdf

61 Ibid.

62 Gatto, Laura, Heather Pearce, Luiza Antonie, and Miana Plesca, “Work integrated learning resources for students with disabilities: are post-secondary institutions in Canada supporting this demographic to be career ready?,” Higher Education, Skills and Work-Based Learning, 2020.

63 Jackson, Denise, and Ken Greenwood, “Enhancing Work-Integrated Learning Outcomes for International Students in Australia,” Edith Cowan University, October 2015: <http://cdn1.acen.edu.au/wp-content/uploads/2015/11/enhancing-wil-international-students-acen-research.pdf>

64 Sattler, Peggy, and Julie Peters, “Work-Integrated Learning and Postsecondary Graduates: The Perspective of Ontario Employers.” Higher Education Quality Council of Ontario, 2012.

Section II: Survey Findings

The following section details survey results for employers and students. Both employers and students were divided into control and treatment groups, based on whether they participated in SWPP. Employers and students were considered treatment group members if they had participated in the SWPP. The employer population consisted of 486 respondents (253 control and 233 treatment), all of whom operate within the digital economy. The student population consisted of 952 respondents (508 control and 444 treatment), all of whom were enrolled in college or university at the time of the survey.⁶⁵

Survey Findings: Employers

Background and Firmographics

Survey respondents in the treatment group were exclusively involved in SWPP facilitated by either Magnet or ICTC. As such, the majority of these employers (51%) classified themselves as operating in “Digital industries.” A further 9% listed advanced manufacturing, while 8% listed health and biotechnology. These values likely differ significantly among SWPP participants not connected to Magnet or ICTC. Non-SWPP (control) and SWPP (treatment) employers were relatively similarly distributed geographically, however, SWPP participation was over-represented in the Atlantic provinces (9% SWPP vs 4% non-SWPP) and underrepresented in Alberta (6% SWPP vs 15% non-SWPP).

SWPP Rides out the Wave of the Pandemic

While the pandemic limited WIL student placements (and hiring in general) in the short term, it did not dampen enthusiasm for the SWPP among participating employers, only 14% of whom said that the pandemic made them less likely to hire students in the future, compared to 37% of non-SWPP employers. In part, this could be attributed to continued demand for low-cost hires. Furthermore, it suggests that SWPP employers are content with participating in the program and likely do not see SWPP students as superfluous hires.

SWPP is Widespread yet Not Universal

WIL programs are relatively common among employers, although not necessarily in the form of SWPP. Of non-SWPP employer respondents, about one in five were participating in some form of WIL (excluding SWPP) at the time of the survey. An equal proportion of control group respondents had been paid (received subsidy) to participate in a WIL program at some point in the previous three

⁶⁵ These groups were non-randomized. When considering the impacts of SWPP participation, it is worth noting that SWPP may not be the causal factor behind differences between SWPP and non-SWPP participants—perhaps a certain type of student/employer is more likely to participate in SWPP in the first place. See the appendix for more details.

years. Despite the apparently widespread WIL participation, about a third (34.4%) of non-SWPP employers reported they were “not at all familiar” with WIL programs. Given that WIL knowledge is not yet ubiquitous and that demand for WIL roles exceeds supply, employers who are unfamiliar with WIL programs comprise an obvious target for WIL participation.

SWPP Employer Companies are Smaller, Younger

SWPP employers tend to be smaller, earlier-stage businesses. Employers that participate in SWPP had mean annual profits of about \$31,000,000. For non-SWPP employers, mean annual profits were nearly 50% greater (about \$45,000,000). SWPP employers had been in business for an average of 10 fewer years than non-SWPP employers (15.3 vs 26.0). Further, SWPP employers were more than twice as likely to be startup or seed-stage businesses, and less than half as likely to be an established business (see Figure 9). Combined, startup and seed-stage businesses consisted of 33% of SWPP employers, and just 7.5% of control group employers. These findings may suggest that the short-term nature and low cost of SWPP placements are appealing for earlier-stage businesses.

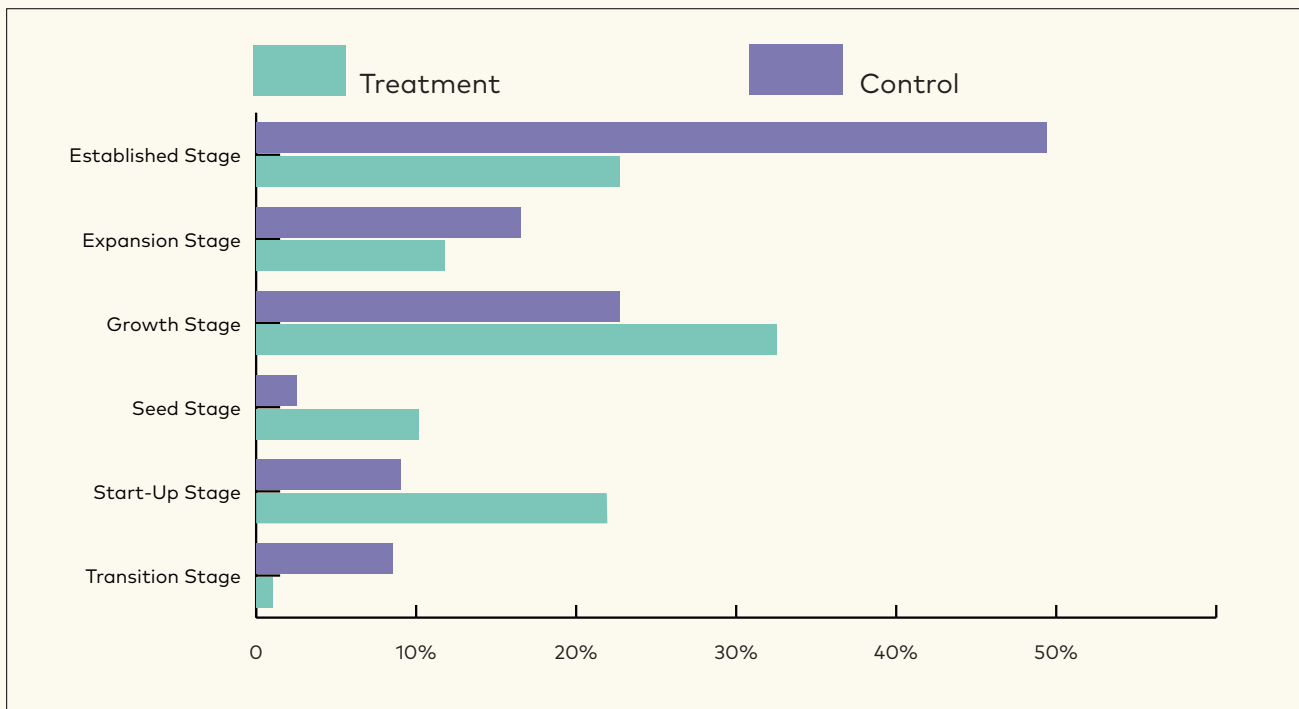


Figure 9. Business stage of employers (ICTC Survey, n = 486)

SWPP is a Positive Experience for Employers

SWPP employers generally had very positive experiences in the program (see Figure 10): 91.5% of all employers participating in SWPP stated that they had a good experience with the program, 81.9% said that they had quality support during their SWPP programs, and 95.5% felt that SWPP served as good overall professional development for their students.

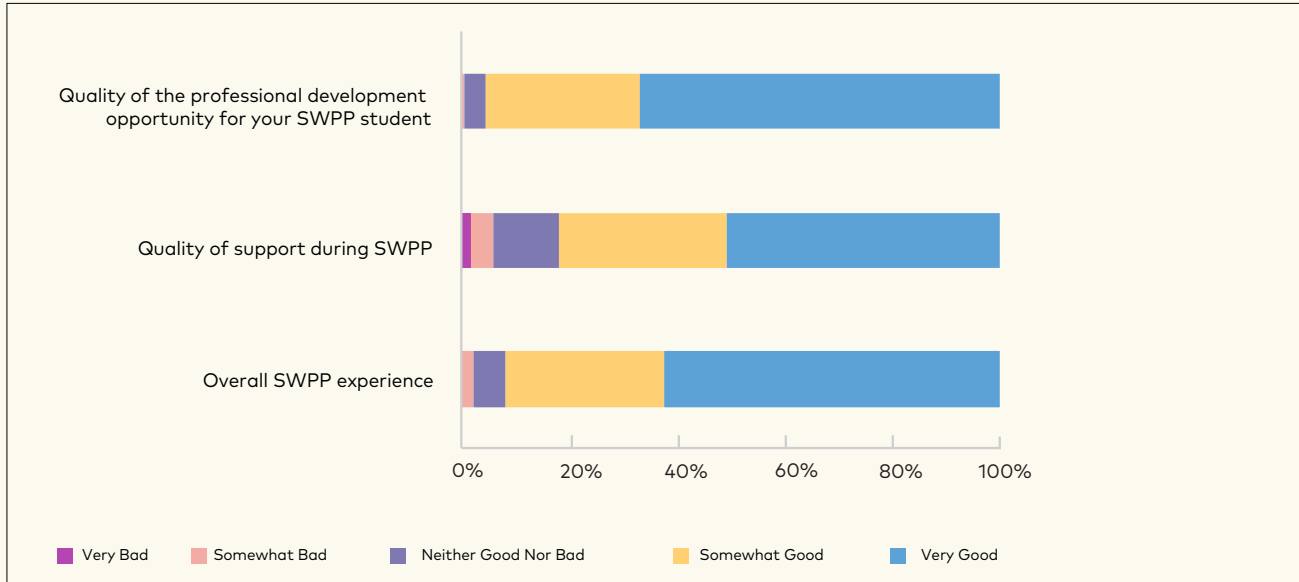


Figure 10. Employer perceptions of SWPP (ICTC Survey, n = 233)

SWPP Placements Do Not Always Suit Employer Project Cycles and Needs

No single barrier to employer participation in WIL stood out among others, but the most cited barrier (approximately one-third of respondents) was project cycles or types not suiting short-term student placements (see Figure 11). This could justify developing more SWPP placements that differ from the standard four-month co-op term.

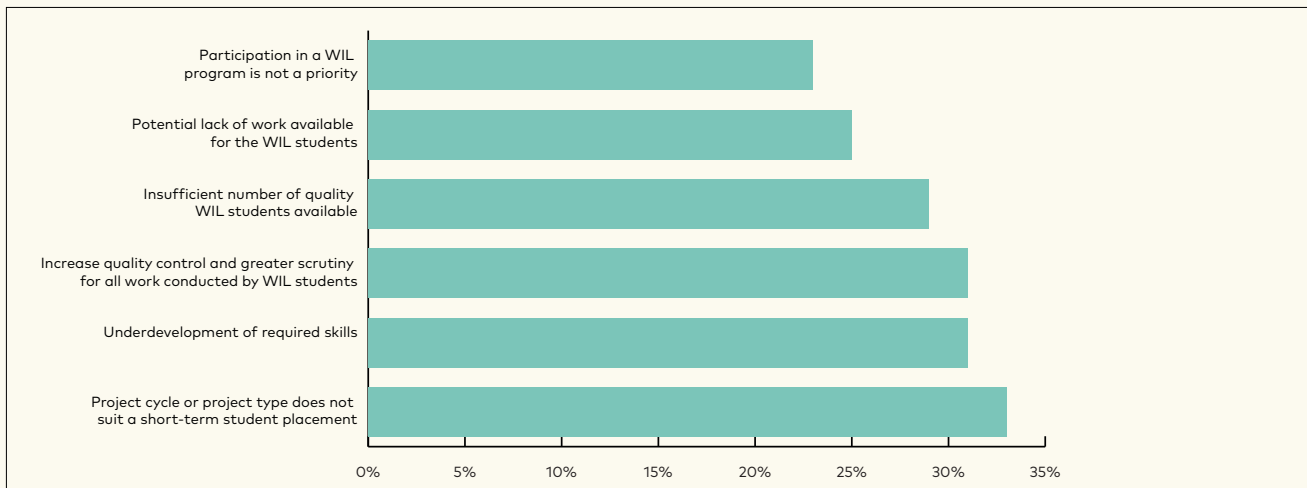


Figure 11. Barriers to participating in SWPP (ICTC Survey, n = 486)

Pre-Screening New Hires is a Top Priority

The most cited benefit of participating in WIL, according to employers, was the opportunity to pre-screen potential entry-level hires—a benefit cited often in literature on WIL. In contrast, the least cited benefit was “an avenue to give back to the community” (see Figure 12), which was still cited by one in three respondents.

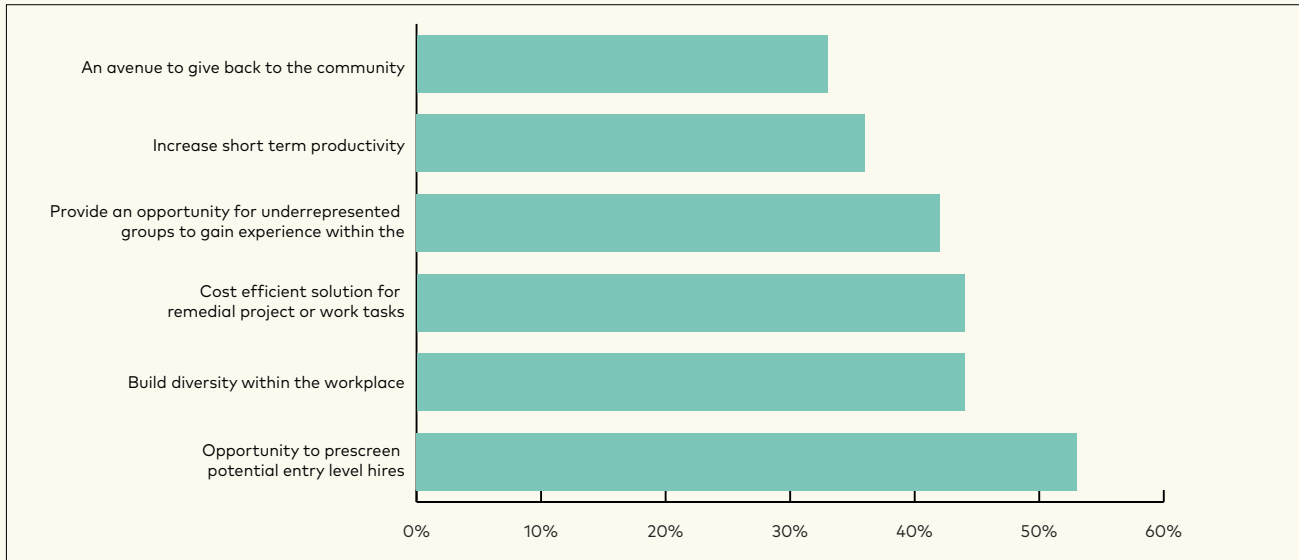


Figure 12. Benefits to participating in WIL (ICTC Survey, n = 486)

Non-SWPP employers were asked to rate their level of agreement with a series of statements. Notably (and corresponding to the fact that pre-screening entry-level hires was considered the leading benefit of WIL), employers disagreed most strongly with the statement that they “would rather invest in a new entry hire than a WIL student” (see Figure 13). Employers agreed most strongly that their “organization would benefit from the energy provided by the students” (see Figure 13)

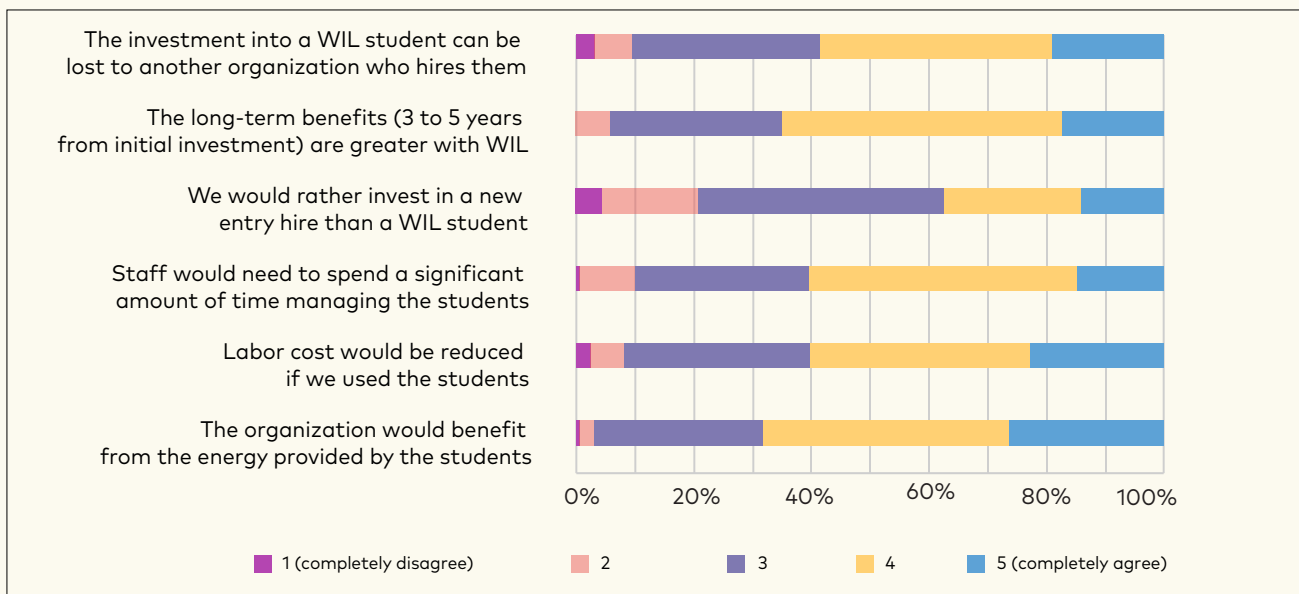


Figure 13. Control group perceptions of WIL (ICTC Survey, n = 253)

Skills Demands Vary by Industry, Soft Skills are Highly Valued

Employers in different industries valued different skills (see Figures 14 and 15). Top skills cited by all employers (SWPP and non-SWPP) were communication, self-direction, and project management. Francophone employers often identified different top soft skill requirements, with collaboration and issue resolution as the most desired employee skills.

	Soft Skills	Technical Skills
SWPP (treatment)	Communication Self Direction Working Independently	Project Management Coding and Programming Remort Working
non-SWPP (control)	Communication Self Direction Working Independently	Project Management Excel/Access Remort Working

Figure 14. Skills needed by SWPP participation (ICTC Survey)

	Soft Skills	Technical Skills
Advanced Manufacturing	Communication Self Direction Working Independently	Project Management Coding and Programming Excel/Access
Agrotechnology	Communication Self Direction Issue Resolution	Coding and Programming Role Based Software Remort Working
Clean Technology	Communication Work Independently Collaboration	Remort Working Project Management Coding and Programming
Digital Industries	Communication Self Direction Time Management	Coding and Programming Project Management Remort Working
Health and Biotechnology	Communication Self Direction Collaboration	Project Management Excel/Access Remort Working

Figure 15. Skills needed by industry (ICTC Survey)

Survey Findings: Students

Frequent SWPP Participants

Students enrolled in SWPP are primarily younger students, earning bachelor's degrees in full-time studies. Approximately 85% of SWPP students surveyed were studying at undergraduate level, compared to just 40% of non-SWPP students (see Figure 16); 91% of SWPP students were full time, compared to just 60% of those not in SWPP. The "standard" SWPP student is also younger, on average, than non-SWPP students: the average age of SWPP students was 22, compared to 35 for non-SWPP students. This is likely because the current design of WIL programming provides post-secondary students with initial workplace experiences and is structured to support full-time, professional degree-seeking individuals. Given the positive reviews of SWPP from many students, there is reason to enhance participation among different student groups, perhaps by promoting SWPP to other post-secondary WIL programs and among older students or individuals who are in career transition.

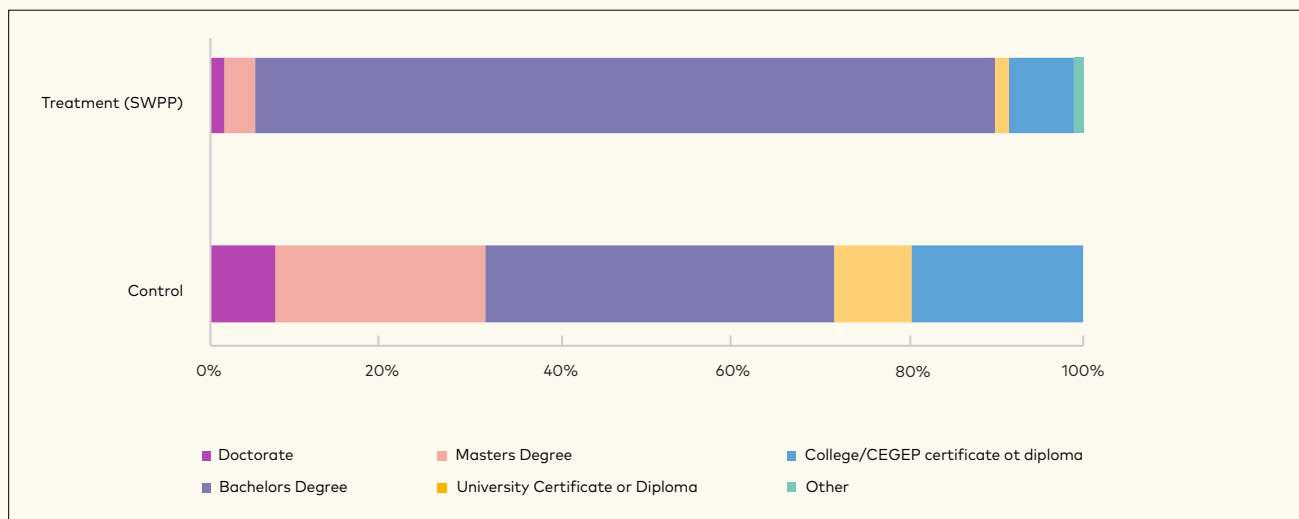


Figure 16. Education level by SPP participation (ICTC Survey, n = 952)

All stakeholders have a Responsibility to Improve Equity, Diversity and Inclusiveness of SWPP

SWPP participation may be less diverse than participation in post-secondary education as a whole. About 5.4% of SWPP students identified as a person with a disability or as neurodivergent, compared to 11.6% of non-SWPP students. About 9% of SWPP students identified as 2SLGBTQIA, compared to 13% of non-SWPP students. SWPP students were also more likely to be male, at 51% compared to 39% of non-SWPP students. Furthermore, only 4.5% of SWPP students identified as newcomers to Canada, compared to 12.9% of non-SWPP students. In terms of ethnic background however, there was little difference between SWPP and non-SWPP respondents. SWPP faces diversity challenges that exist in the broader ecosystem of WIL and STEM work. WIL participation is more common in less diverse fields (such as STEM). At the same time, more than 40% of ICTC and Magnet SWPP participants surveyed are engineering students, in large part due to the nature of

work in the digital economy. Co-op programs—the most common form of WIL according to survey participants (see Figure 17)—face similar challenges: for example, some estimates suggest that co-op program participation does not increase future earnings for women as significantly as they do for men.

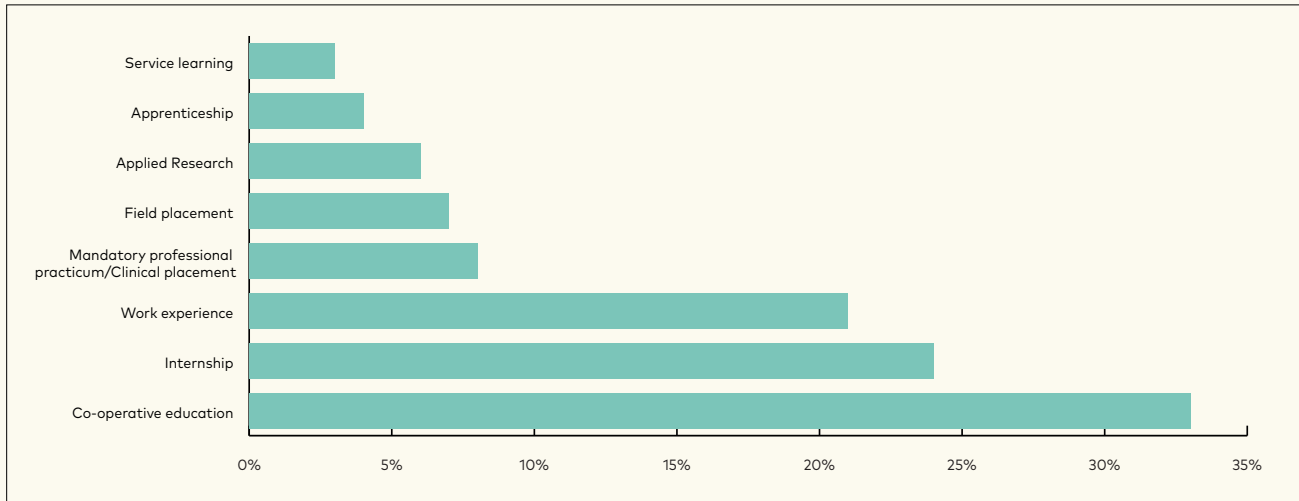


Figure 17. Student WIL participation (ICTC Survey, n = 952)

In general, francophone respondents shared similar demographic characteristics as Anglophone respondents. Despite this, however, francophone respondents had different experiences than Anglophone respondents in some key ways. For example, in the absence of SWPP, francophone students expected to earn \$15 per hour, compared to \$22 per hour for Anglophone students. Francophone students were also more likely to have converted a SWPP placement into a job offer (61% versus 47%). Regional conditions, rather than language, may be attributable to many of these differences. Formal WIL Programs and Online Applications Account for Nine in 10 SWPP Placements While formal academic programs (such as co-op) are the primary means by which students find placements (49%), a significant number (39%) found their SWPP placements online, either through job boards such as LinkedIn or the online recruiting platform Outcome Campus Connect (see Figure 18).

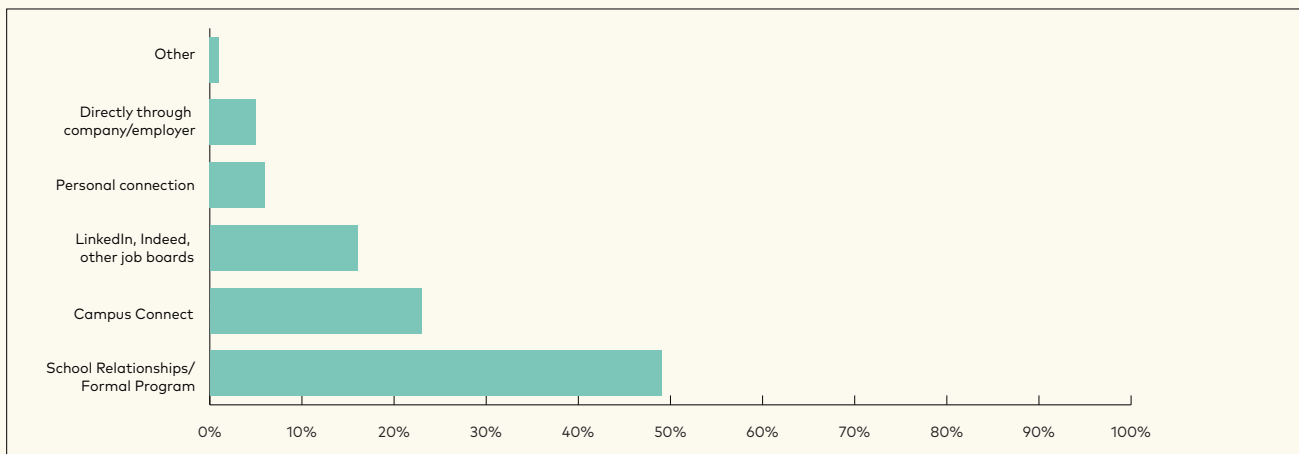


Figure 18. Means of securing SWPP placement (ICTC Survey, n = 444)

SWPP Students are Optimistic about their Prospects and their Abilities

On average, compared to non-SWPP students, SWPP students appeared to be more optimistic about their future job prospects, more likely to enjoy their academic program, and more likely to expect to graduate without debt (see Figure 19). SWPP students were also less likely to want to continue their education after graduating compared to non-SWPP students, perhaps because their experience had led them to enjoy work or secure jobs after graduation. Such differences may also exist for other forms of WIL than SWPP.

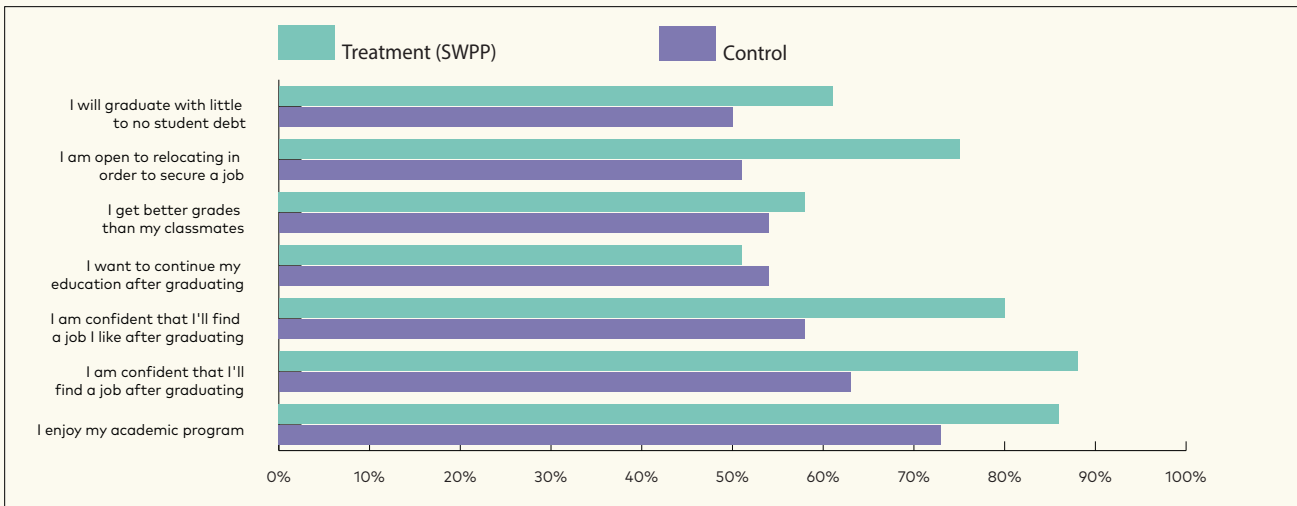


Figure 19. Student attitudes (ICTC Survey, n = 952)

Though most students assessed their own skills optimistically, SWPP students rated their skills more highly than their peers in every domain except for “creativity” (see Figure x). While SWPP students are optimistic about their prospects and their abilities, one limitation of this study is that without panel data, it is only possible to measure immediate outcomes and student expectations, rather than the results of participating in SWPP. A more robust understanding of SWPP would be possible if such data were developed.

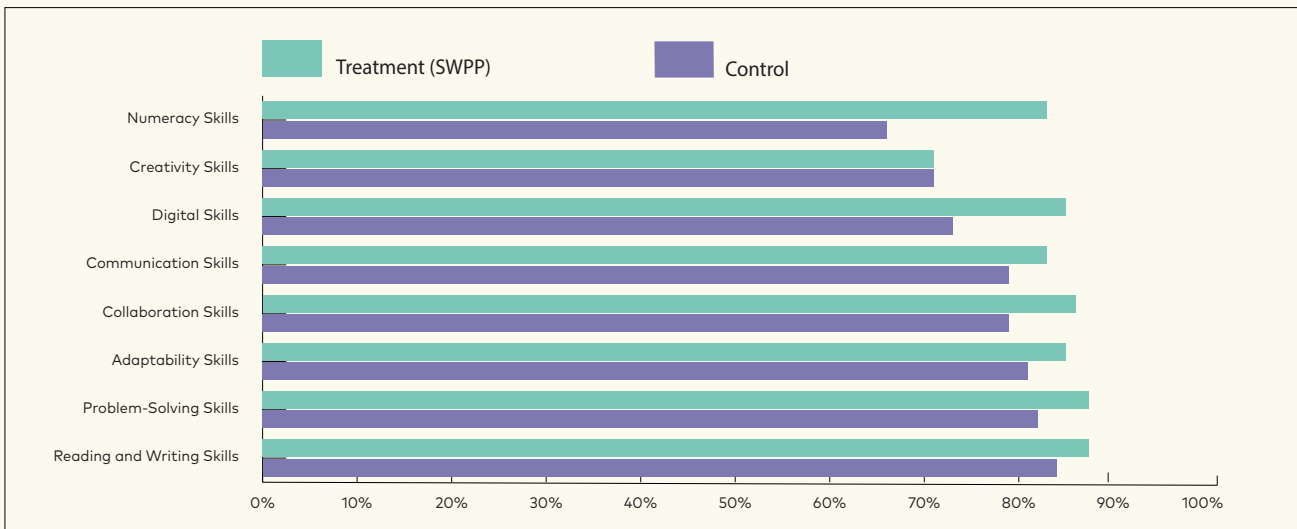


Figure 20. Self-assessment of skills (students) (ICTC Survey, n = 952)

Section III: An Economic Model of SWPP

Transfer or subsidy programs such as SWPP aim to facilitate economic activity that benefits both students and employers, as well as society at large. Government subsidy programs can help bring students workers and companies together to accelerate these economic benefits.

Labour transactions between the student and employer may yield large social benefits via education to the student (as education likely yields beneficial spillovers to the larger society) or to the employer (perhaps by allowing the employer to pre-screen workers). Despite these "positive externalities," the student and employer may not exert an "optimal" amount of effort to ensure that the transaction occurs. In short, by paying for part of the student's labour, the SWPP serves as a subsidy that smooths and encourages these socially beneficial labour arrangements.

The following microeconomic model relies on primary data collected from students and firms enrolled in Magnet and ICTC SWPPs to estimate the value of the programs to the participants and society at large.

Employer Payoff from SWPP

The employer's utility or benefit from the SWPP can be defined as:

$$U_{\text{Employer}} = \text{Student Labour Value} - \text{Employer Wage Contribution}$$

That is, the value to the employer of the transaction is the value of the student's labour minus the wage paid by the employer to the student (not including the SWPP subsidy). Both of these values are estimated through the survey of businesses involved in the SWPP. The Employer Wage Contribution is estimated by this question:

"How much do you pay in salary (ignoring SWPP contribution) for the average SWPP student per month? This will be 100% confidential."

The result is a concrete figure paid by the employer.

Estimating the Student Labour Value is more tenuous. By revealed preference, we know that the Student's Labour Value is greater than or equal to the Employer Wage Contribution (or else the employer would not execute the transaction). To estimate this value, the survey asks businesses:

"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? This number must be greater than or equal to the answer above."

Figure 21 shows the histogram for these two variables. The histogram reveals the bell-curve-shaped distribution for the two variables, as well as the mean of each distribution with a dashed line. This graph indicates that on average, the maximum wage that employers would pay for SWPP students in the sample is \$3,230 per month (green), whereas they self-report paying only \$2,925 per month (red). This means that firms involved in SWPP are yielding an average benefit to employers of \$305 per month per student, according to their own self-reporting.

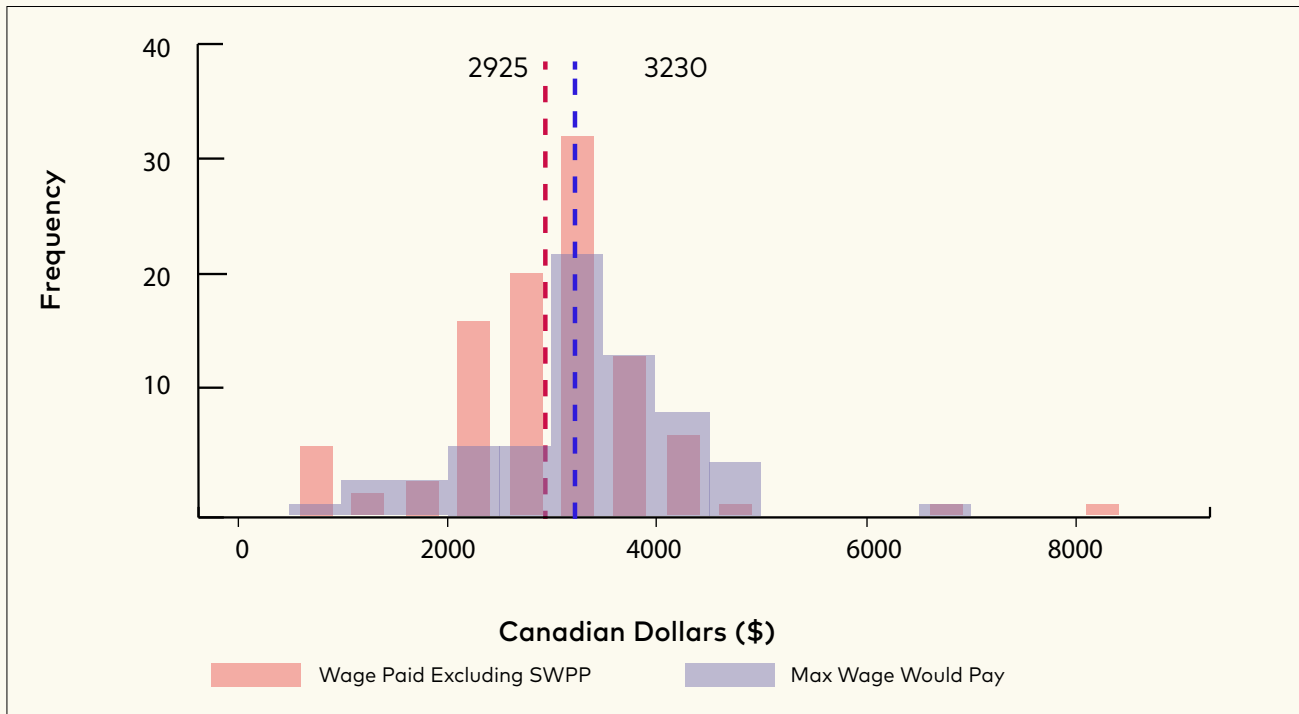


Figure 21: SWPP businesses wages paid versus maximum wage

Student Payoff from SWPP

The student worker’s utility or benefit from the SWPP can be defined by the utility function:

$$U_{\text{Student}} = \text{Employer Wage Contribution} + \text{SWPP Subsidy} + \text{Education} - \text{Opportunity Cost}$$

Therefore, the value of the program to the student worker is the wage component received from the employer, plus the wage subsidy from SWPP, plus the educational value of the internship, minus the opportunity cost in time and effort. The final term in the equation is important, as the student could theoretically be doing something else with their time. Thus, the program is only creating value for the student if the SWPP participation is more valuable than the next-best alternative.

Each term in the student worker’s utility function is estimated through a separate question to the students participating in the survey. The average wage received by the student worker or the

Employer Wage Contribution + SWPP Subsidy 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.”

The opportunity cost is estimated by asking the student worker 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 22 shows the distribution of responses from student workers involved in SWPP who responded to our survey. The figure shows that the average monthly wage expected without SWPP is \$2,558 (red), compared to an actual average monthly wage received of \$3,102 (green). Thus, according to the student worker’s self-assessment, the SWPP increased monthly wages for the students (provided an economic benefit) by an average of \$544.

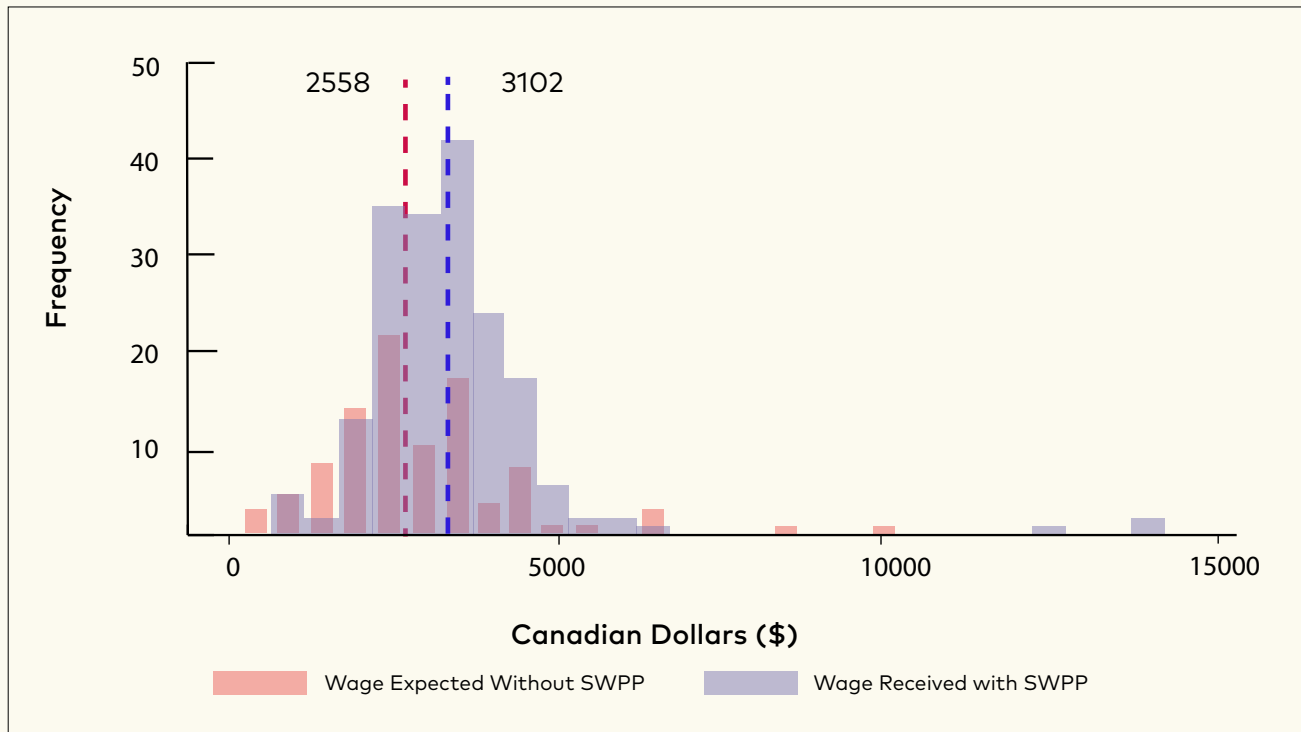


Figure 22: Wages received versus expected wages without SWPP

Finally, the value of the Education component is derived by asking the following question:

“What is/was the minimum monthly wage that you would have taken to work this job? This information is entirely confidential and is used to calculate the value of the program.”

Figure 23 shows the average monthly wages received by the student (green), compared to the minimum wage that they would have accepted to work the job (blue). Once again, the survey data shows that the students are earning an average of \$3,102 per month, but they would have accepted as low as \$2,147 to work the job. Thus, students are earning a surplus value of \$955 per month.

Figure 23: Real average wages received by student workers versus the minimum wage acceptable to student

This question enables us to know how low a wage would have to be for a student to no longer want to take the SWPP placement. At this wage level, the student’s utility would be zero. With the student’s estimate of opportunity cost, this “minimum acceptable wage” enables us to derive an estimate of the value of the Education component for student workers.

We know that, on average:

$$U_{\text{Student}} =$$

When, on average:

$$\text{Employer Wage Contribution} + \text{SWPP Subsidy} = \$2,147$$

Thus:

$$\text{Employer Wage Contribution} + \text{SWPP Subsidy} + \text{Education} - \text{Opportunity Cost} = \\ \$2,147 + \text{Education} - \$2,558 = 0$$

Thus, the educational value of the SWPP, on average, is estimated to be at least \$411 per month for the students who responded to the survey. Note that this assumes the wage entirely captures the value of the opportunity cost, or that there is zero educational value for the outside option. If the opportunity cost is greater than the wage value provided by the students, then the value of the education to the student is higher. Thus, \$411 is likely a lower bound estimate of the monthly educational value of the program. This value is also largely “self-reported,” although it assumes that the student’s utility function is correctly specified in the model.

Implications

The theoretical model, when using primary survey data collected from employers and student workers involved in the SWPP, implies that the program generates considerable value—both financially and intrinsically. Firms self-report that student workers are creating positive average net value of \$305 per month. Among the sample of 233 SWPP employers responding to this survey alone, this would equate to \$284,260 per four-month term.

With SWPP, firms are reporting a utility benefit of:

$$U_{Employer} = \text{Student Labour Value} - \text{Employer Wage Contribution}$$

$$U_{Employer} = \$3,230 - \$2,925 = \$305$$

Student workers also self-report that the SWPP-induced transactions are generating value. On average, the student workers estimate that the SWPP enables them to earn a monthly wage of \$544 more (roughly 20% higher) than they would expect to earn in the absence of the program. Moreover, the minimum wage students report that they would accept to work a SWPP job is also below the wage they expect that they could earn in the absence of the program. This difference implies that the SWPP is generating other non-monetary value for the student. In the model, it is assumed that this average difference of \$411 is attributable to the educational value of the SWPP to the student. A monthly value of \$411 worth of education means that SWPP is also generating wider social benefits. It is customary for government to subsidize education. Thus, the SWPP subsidy can be viewed as an education subsidy akin to the subsidy for practical post-secondary learning. Student workers self-report considerable monetary and non-monetary value from the program. Students self-report a monthly positive net value of \$955 via the SWPP. For the sample of 444 SWPP students responding to this survey, this would equate to \$1,696,080 per four-month term. Finally, the survey responses enable the calculation of the utility benefit to firms and student workers with SWPP, compared to a counterfactual in the absence of SWPP.

Students are reporting a utility benefit of:

$$U_{Student} = \text{Employer Wage Contribution} + \text{SWPP Subsidy} + \text{Education} - \text{Opportunity Cost}$$

$$U_{Student} = \$3,102 + \$411 - \$2,558 = \$955$$

Thus, the model estimates that the program is creating considerably more value for students, workers, and society (through education of the student) than it costs taxpayers.

Recommendations for Further Study

Recommendations for further study could be considered in three areas extending from this report's findings. First, questions of equity in WIL exist for women, international students and newcomers to Canada, people with disabilities or who are neurodiverse, 2SLGBTQQA individuals, and students from lower income backgrounds. Topics pertaining to equity include WIL partnerships, and the SWPP ecosystem would benefit from more research. Access to SWPP-supported WIL opportunities for more students will require new organizational partnerships to create novel WIL programs in academic disciplines and industry areas that are not currently represented. Second, future research on WIL in Canada could involve a larger program evaluation, such as a survey of students and employers participating in SWPP administered by all program delivery partners (not solely Magnet and ICTC). Future research could look to use panel data to determine the longer-term outcomes for SWPP or WIL participants. Third, a question of ecosystem efficiency might be explored to determine if or how additional barriers are created by different policies or practices employed by institutions, delivery partners or employers themselves. Currently, Outcome Campus Connect is available to all SWPP delivery partners. As more student recruitment moves online, future studies might consider a process evaluation on the activities of both Outcome Campus connect and SWPP delivery partners to determine and develop best practices and efficiencies.

Conclusion

This first-of-its-kind program evaluation suggests that employers and students receive economic benefits and high levels of satisfaction from participating in SWPP, while positive externalities, particularly related to educational value for students, appear to be significant. SWPP may also have unique benefits for smaller, earlier-stage companies and francophone students. While SWPP has proven effective at supporting a certain type of student—young, full-time undergraduates—there may be benefit in more purposefully seeking to extend the program's reach to underrepresented groups and to individuals who follow less typical education and career paths, such as mature students. Still, the evidence is clear that SWPP provides benefits to both employers and students, far outweighing program costs.

Playing to some of Canada's existing strengths—both in terms of bolstering the digital economy and continuing to provide innovative opportunities for a highly educated population—could go a long way toward ensuring that we emerge from the pandemic robustly. The SWPP (and WIL more generally) appears to be an ideal tool to help do so. The growth in digital transformation across the economy will continue to accelerate demand for digital talent. Recent research by ICTC finds that by 2025, Canada will see a demand for an additional 250,000 digitally skilled workers. Expanding the SWPP for the foreseeable future is warranted across Canada; doing so will not only continue to support business growth and expand overall economic prospects but offer high-quality employment and training opportunities for Canada's youth.

Appendices

I. Methodology

The research team conducted an evaluation of SWPP using a mixed method research design. Comparing groups of similar employers and students who participated in SWPP and those who did not, the evaluation was able to develop an economic model using counterfactuals to assess the impacts of SWPP. The evaluation consisted of multiple components, including:

1. Development of overarching theory of change for SWPP as it relates to ICTC, Orbis and Magnet's involvement in SWPP
2. Literature review
3. Survey design
4. Survey administration
5. Development of an economic model

Literature Review

Because literature on SWPP itself (and especially its impacts on participants) is limited, the literature review focuses more broadly on WIL, and draws comparisons to SWPP when possible. This review draws on primary and secondary research by researchers, industry stakeholders, and government bodies, in the fields of education, workforce development, industrial relations, and public policy. The review focuses on WIL as it pertains to four primary topics:

1. Incentives and obstacles to participation in WIL for students and employers
2. Entry-level opportunities, roles, and skills needs
3. The impacts of the pandemic on WIL
4. The outcomes of participating in WIL for students and employers

Theory of Change

At the onset of the evaluation, ICTC, Orbis and Magnet wanted to develop a Theory of Change (ToC) in order to develop a shared understanding how our organizations are bringing about change related to SWPP. The ToC would provide a conceptual framework for understanding how different stakeholders, activities, and other factors contribute to creating SWPP impacts. Together our three organizations held a series theory-of-change workshops to examine the intended impacts of SWPP for employers and students and outline the activities and practices that contribute to the results of the program. Our theory of change informed us of our gaps in knowledge, literature review, research questions, and data that would need to be collected for the evaluation. Below are our Student and Employers ToC model.

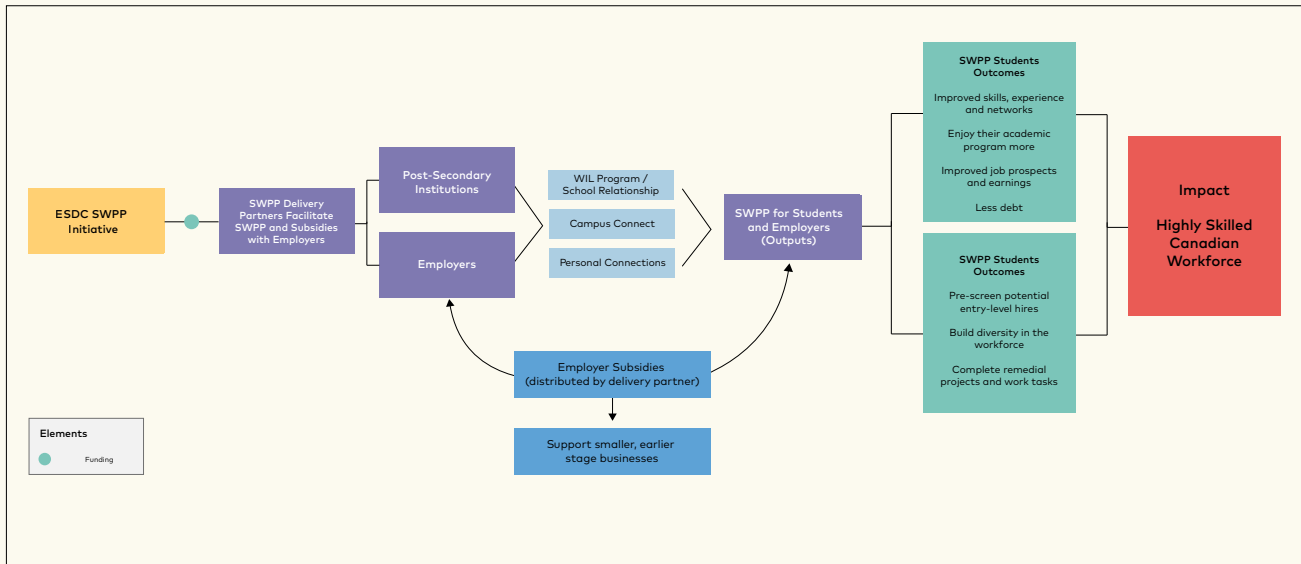


Figure 24

Survey Design

The literature review informed the development of surveys for both employers and students. Based on whether they participated in SWPP, both employers and students were divided into control and treatment groups. Employers and students were considered treatment group members if they had participated in the SWPP. These groups were developed to 1) allow for a general comparison between those who participated in SWPP and those who have not, and 2) provide data to develop an economic model assessing the perceived value of SWPP for students and employers. The employer population consisted of 486 respondents (253 control and 233 treatment), all of whom operate within the digital economy. The student population consisted of 952 respondents (508 control and 444 treatment), all of whom were enrolled in college or university at the time of the survey. The treatment groups consisted of employers or students who had received SWPP funding provided by either Magnet or ICTC. The control groups consisted of similar populations that had never received SWPP funding.

	Control	Treatment
Student	Currently enrolled in college or university, has never participated in SWPP	Currently enrolled in college or university, has participated in SWPP
Employer	A business that operates within the digital economy; has not participated in SWPP in the last three years	A business that operates in the digital economy; has participated in SWPP sometime in the last three years

Figure 25

Survey Administration

To gather data for treatment groups, this evaluation engaged students and employers that participated in spring, summer, and fall terms of the 2021 SWPP program administered by ICTC and Magnet. Both organizations emailed students and employers from those three terms and offered an honorarium for participating in the survey. Employer and student respondents who do not operate, work, or study in the digital economy were filtered out. Furthermore, incomplete surveys and those with a high number of errors were excluded. Market research firm MaruBlue was engaged to collect the data from the control groups. The control group participants were randomly selected from a large cross-country online panel. Surveys were administered in both French and English and were conducted in March and April of 2021.

Economic Model

The microeconomic model uses primary data collected from the surveys to value SWPP participation for students and employers, and to determine the value of SWPP for society at large. The model examines both the employer and student's utility or benefit from the SWPP and then calculated the utility benefit to firms and student workers with SWPP, compared to a counterfactual in the absence of SWPP.

II. Limitations of Research

Economic Model

Theoretical microeconomic modelling involves making assumptions about the preferences and motivations of economic actors. If the model is mis-specified, results, especially the estimated value of education from SWPP, may be inaccurate.

Surveying is vulnerable to various biases that may undermine the validity of estimates. Selection biases may occur at multiple stages, including which students sign-up for SWPP. This may upwardly bias the estimated value of SWPP. Response bias may mean that respondents provide the answer they believe that the survey "wants to hear." This may have biased upwards the estimate of employer value. Attrition biases may also bias upward the estimates of program value. Respondents may be more willing to self-report positive outcomes than negative outcomes.

Finally, the model relies on respondents making abstract estimates about what they could do, or would do, under alternate scenarios. This enables the modeller to estimate the value of the program relative to a counterfactual. However, respondents may be limited or biased in their ability to estimate what may occur under counterfactual scenarios.

Survey Design and "Treatment" and "Control" groups

The method used in this report is referred to as quasi-experimental because treatment status was not randomly assigned. As such, treatment and control groups are not necessarily comparable, and differences between the two groups are not controlled for.

The control group sample was designed to be representative of post-secondary students across Canada, but sampling bias (e.g., those participating in online-surveys may be older on average) may limit this representativeness. Similarly, the treatment group sample may not be fully representative of the student and employer populations participating in SWPP placements administered by ICTC and Magnet. Further, this sample may not be fully representative of the broader population participating in the SWPP, notably because of ICTC and Magnet's focus on SWPP placements in the digital economy.

Canada

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Research by

