



**BUSINESS/
HIGHER EDUCATION
ROUNDTABLE**

**TAKING THE PULSE OF
WORK-INTEGRATED LEARNING
IN CANADA**

PREPARED BY

 **academica group**

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WORK-INTEGRATED LEARNING IN CANADA IN A NUTSHELL

In April 2015, the Business Council of Canada established the Business/Higher Education Roundtable (BHER), a national forum comprising 27 leaders from business, universities, colleges and polytechnics. BHER works to support young Canadians as they transition from education to the workplace, strengthen research collaboration between industry and institutions, and help Canadian employers as they adapt to the economy of the future.

The Roundtable identified two priority initiatives with the following goals:

- Help young Canadians make the transition from school to work through collaborative partnerships between the business community and post-secondary institutions and promoting practice-based learning opportunities for students.
- Strengthen research, development and innovation partnerships between Canadian companies and post-secondary institutions.

The Roundtable has engaged Academica Group, a higher education consultancy, to examine:

- The scope of work-integrated learning available at post-secondary institutions in Canada.
- The extent to which post-secondary students participate in work-related programs.
- Best practices in the design and implementation of work-integrated learning programs.

This report reviews the extensive academic research on these topics. It outlines numerous challenges that have emerged in the field of work-integrated learning in Canada. It also identifies a number of practices and recommendations that could alleviate these concerns and promote a high-quality, high-value experience for students.

WHAT IS WORK-INTEGRATED LEARNING?

The definition of work-integrated learning, often abbreviated to WIL, has become increasingly blurred as the drive to offer practical, work-related instruction gains impetus. Each college, university and polytechnic uses its own language to market, deliver and measure its programs. To add to the confusion, the term “work-integrated learning” is often used interchangeably with other, similar terms such as “work-based learning,” “practice-based learning,” “work-related learning,” “vocational learning,” “experiential learning,” “co-operative education,” “clinical education,” “internship,” “practicum,” and “field education”. However, many of these terms are also used to describe specific types of work-integrated learning. This inconsistency can lead to funding and administrative problems, and create confusion among employers and students over objectives and expectations.

This report advocates for the following broad definition of WIL, compatible with the definition used by the Higher Education Quality Council of Ontario:

Work-integrated learning is the process through which students come to learn from experiences in educational and practice settings. It includes the kinds of curriculum and pedagogic practices that can assist, provide, and effectively integrate learning experiences in both settings.

In practice, all types of work-integrated learning have seven common attributes:

- Purpose
- Context
- Nature of the integration
- Curriculum issues
- Learning
- Partnerships between the educational institution and the workplace or community
- Support provided to the student and to the workplace or community

As Professor Ashley Stirling of the University of Toronto and others have noted: “The benefits of

work-integrated learning are not implicit within the work itself, but rather in the integration of theory and practice facilitated through the work-integrated learning experience.”

STUDENT PARTICIPATION

In the absence of relevant national data, we have no way of knowing exactly how many students are involved in school-to-work transition programs at Canadian post-secondary institutions. However, we can make some rough estimates, based on the limited data available:

- About half of **university** students take part in some form of work-integrated learning during their post-secondary studies.
- Between 65% and 70% of **college and polytechnic** students enrol in such programs.

COMPONENTS OF WORK-INTEGRATED LEARNING

One academic model has identified no fewer than three dozen activities that can be grouped under the umbrella of work-integrated learning. They range from mock interviews and role playing, to volunteering, vacation work and one-day site visits. For ease of analysis, this report focuses on seven types of work-integrated learning, grouped under three main categories:

- **Systematic training**, where most learning is done in the workplace.
 - **Apprenticeships:** A combination of in-school training for a skilled trade or occupation, and on-the-job workplace training.
- **Structured work experience**, where students become familiar with the world of work as part of a university or college program.
 - **Co-op:** Periods of study alternate with work placements, offering students a structured approach that integrates their studies with work experience in a related field.



- **Internships:** Work experiences, typically lasting a year or more, at or near the end of a study program.
 - **Mandatory professional practice:** Work arrangements required for a professional license or designation.
 - **Field experience:** Placements and work-related experiences that prepare students for professional or occupational fields, but are not required for a professional license.
- **Institutional partnerships** are activities or programs offered by a university, college or polytechnic, and designed to achieve specific industry or community goals.
- **Applied research projects:** Students taking on real-world projects, often with industry partners as clients and the students as service providers.
 - **Service learning:** A range of activities intended to provide equal benefit to the service provider (the student) and the recipient (the community) while maintaining a focus on learning.

In addition, two new types of work-integrated learning have emerged in recent years, based largely on the importance of innovation in the digital economy:

- **Incubators and accelerators:** Intended primarily to promote entrepreneurship, but the scope of their services has expanded in recent years to include social initiatives. Qualified applicants may receive funding, supervision, and mentorship from experienced practitioners.
- **Bootcamps and hackathons:** Popular venues for computer programmers and app designers to develop and showcase their skills. These events are widely seen as a more practical alternative to university computer science programs, and more responsive to industry demands. But the quality of instruction varies markedly due to a lack of oversight and regulation.

This report also draws attention to a growing

practice among post-secondary institutions to provide **digital badges** and **co-curricular records** as a way of certifying volunteer or work experience gained outside the regular school curriculum.

See pages 15 to 39 for more details of these programs, including their main purpose, their benefits and shortcomings, the roles of various stakeholders, and specific examples of how universities, colleges and polytechnics have put them into practice across Canada.

BARRIERS TO IMPLEMENTATION

Stakeholder groups face a variety of challenges in implementing work-integrated learning initiatives. We have grouped these barriers under four main categories:

- **Cost:** Implementing work-integrated learning programs can be costly for all parties involved. Employers must invest in training and/or compensation for participating students, and consider the cost in time and resources of supervising and mentoring them. Universities and colleges must bear the considerable cost of developing and nurturing relationships with industry and community partners, as well as building and developing WIL programs. Finally, students often voice concerns about the costs of work-integrated learning, including unexpected financial outlays, the effect on their studies, and fair compensation.
- **Administrative burdens:** Administering a work-integrated learning program is a labour-intensive task for all parties. Industry and community partners have expressed frustration at the time-consuming processes that they encounter at educational institutions, which themselves put considerable effort into managing their WIL programs. Faculty members surveyed for one study acknowledged that they rarely dealt directly with business, government or community partners, underlining the difficulty of integrating classroom work with workplace training.



- **Supply and demand:** Providing an adequate supply of WIL opportunities to meet student demand is a continuing challenge. Beyond simply creating an adequate number of spaces, educational institutions and their partners often have difficulty finding an appropriate fit between a work-integrated learning opportunity and the needs of a specific academic program or student. This balancing act will become even more critical as work-integrated learning expands in new directions.
- **Measuring outcomes:** The varied and unpredictable nature of WIL assignments often makes it difficult to assess individual students' performance in a work environment. On a much larger scale, the sheer diversity of work-integrated learning and disagreements over its definition complicate efforts to measure the success of WIL programs against a uniform benchmark. Given the limitations of traditional assessment methods, new approaches—designed in collaboration with all relevant stakeholders—will be needed.

BEST PRACTICES

Work-integrated learning programs vary widely, depending on the context of their development and delivery, their goals, student and industry needs, and the aims of the college, polytechnic or university offering them. Nonetheless, a number of best practices should apply to any program, regardless of size or scope. They include (see pages 46 to 53 for more details):

- **Design with the outcome in mind:** A foundation of clearly articulated goals is essential to any successful WIL initiative. That foundation should include a definition of desired outcomes, a means of assessment, and a learning plan. Moreover, the program's goals should drive its content as well as its implementation. Program outlines should state specifically what students will be expected to know or able to do at the end of their work-integrated learning experience.
- **Understand faculty needs:** Faculty are generally supportive of work-integrated learning, especially at colleges. A 2012 survey found that 95% of college and 83.5% of university faculty in Ontario agreed or

strongly agreed that WIL is valuable, with most indicating that students are the primary beneficiaries. However, they also raised a number of concerns. The most common include ensuring quality placements, finding enough placements for students, and faculty workload.

Faculty members also report that they seldom have direct interaction with business, government or community members. Instead, they tend to limit themselves to using business examples in class and providing career assistance. Integration of student learning and real-world work experience is more common among college than university faculty. Some faculty have also raised concerns that work-integrated learning is slanted towards turning out the maximum number of workers, rather than providing students with a broad, theoretical education.

- **Collaborate with all stakeholders:** A successful WIL initiative requires input from all stakeholders, and collaboration among them. They include representatives of participating educational institutions, faculty, industry and community partners, and students. All these groups must understand the benefits and purpose of work-integrated learning, both in a general sense and in the context of a specific initiative.

Colleges, polytechnics and universities should work closely with professional organizations to ensure that each program meets the needs of a given industry or community. Similarly, faculty members should join relevant professional societies, attend professional conferences, invite professionals into the classroom to speak to students, and even assess student work.

Initiating a partnership requires preparation and adequate resources, not just to set up the relationship but for its continuing success. It is critical that colleges and universities bear in mind the goals of employers and other partners. In particular, they need to recognize that educational outcomes do not always dovetail neatly with commercial objectives.

Employers' motivation to take part in a work-integrated learning program often



varies according to their size. One survey showed that the smallest employers were more likely to choose “giving back” as their top reason for participating, and were less likely to cite the desire for a specific skill or talent. Businesses with 10–19 employees were more likely to cite “enhancing company reputation”. Firms with 20–49 employees mentioned “pre-screening of new hires” as their key attraction. For larger firms, “managing short-term workflow pressures” was the main drawback.

- **Create a constructive learning space:**

The learning space refers not just to a physical location, but also the social environment in which a WIL program takes place. Creating an effective learning space entails constructive assessment that enables students to learn and improve, as well as quality mentorship from individuals who understand the program’s goals. The rewards include mitigating risk and ensuring that the program meets learners’ diverse needs.

Many educational institutions reinforce this process by developing effective risk-management techniques in consultation with their legal teams. These typically cover workplace health and safety policies, intellectual property and confidentiality issues, student misconduct, coordination of policies between the workplace and the institution, remuneration issues, and workplace and sexual harassment.

- **Facilitate reflection:** A period of reflection, defined as “understanding one’s own philosophy and re-evaluating it in light of experiences”, helps solidify the skills acquired by students in work-integrated learning programs. Reflection also enhances students’ capacity to examine their own strengths and shortcomings. Students’ feedback indicates that it often takes time for them to realize that an apparently negative experience can turn out to be a fruitful learning opportunity.
- **Integrate theory and practice:** Poor integration of theory and practice is one of the greatest obstacles to success in WIL programs. Effective integration should be an explicit objective, with educational institutions and their partners working to ensure that

it happens in both directions. This means working with students and external partners to clarify the practical relevance of theoretical work and, conversely, the value of practical experience in the classroom. Integration should be a shared responsibility among all stakeholders.

A study by South Africa’s Council on Higher Education recommends that students be exposed to problem- or project-based learning prior to enrolling in a workplace program in order to ensure that they are adequately prepared for the placement. Students must have a thorough understanding of workplace expectations, and of their own institution’s expectations. They should also be informed how to respond to problems that may affect their ability to meet these expectations.

- **Maintain, evaluate, and improve:**

The success of a WIL program typically hinges on frequent evaluation against a carefully selected model based on the program’s desired outcomes. Such an evaluation gives the educational institution a clearer understanding of the needs of all participants. It also measures the degree to which a program is achieving its goals, and helps identify specific shortcomings and solutions.



CORE RECOMMENDATIONS

Besides the specific best practices summarized above, we have distilled four core recommendations from the research into work-integrated learning:

- **Adopt a common language:** At present, there is no generally agreed description of work-integrated learning. The term itself is not uniformly applied, and descriptions of specific types of WIL are often confusing. We strongly recommend using the following definition:

Work-integrated learning is the process through which students come to learn from experiences in educational and practice settings. It includes the kinds of curriculum and pedagogic practices that can assist, provide, and effectively integrate learning experiences in both settings.

- **Improve data collection:** No data is currently available on participation in the full spectrum of work-integrated learning activities offered by post-secondary institutions across Canada. Given this gap, we see an opportunity for a more consistent national approach to collecting the relevant data. There appear to be two main options to achieve this goal: graduate surveys and administrative data. Each has its own merits and challenges.
- **Build an evaluation mechanism:** In the interests of maintaining high-quality programs, a framework should be developed to evaluate the success of WIL initiatives. The ability to build such a framework depends on developing a uniform definition of work-integrated learning, as well as consensus on its objectives. These efforts should involve all stakeholder groups, notably relevant educational institutions, industry, government, community partners and students. The resulting framework could help identify strengths and weaknesses in various programs, and as a tool for making adjustments as needed.
- **Encourage coordination among stakeholders:** The success of any WIL project hinges on the way its goals are set. Even so, an over-arching strategy can—and should—be developed as part of the effort to expand opportunities for Canadian students. Institutions must work together and with relevant stakeholders to build a shared understanding of the overall benefits, risks and challenges of work-integrated learning. Such cooperation will help them develop an array of tools to improve and expand WIL initiatives.



WORK-INTEGRATED LEARNING IN CANADA

INTRODUCTION

The Business/Higher Education Roundtable (BHER), established in 2015 by the Business Council of Canada, has set a goal of ensuring that 100% of Canadian postsecondary students¹ benefit from some form of work-integrated learning (WIL) prior to graduation. To help in achieving this goal, BHER contracted Academica Group to conduct an environmental scan organized around three project objectives:

1. Identify the breadth of current WIL experiences available at postsecondary institutions in Canada.
2. Identify best practices in the design, implementation, and delivery of WIL.
3. Assess what percentage of Canadian postsecondary students currently participate in WIL prior to graduation.

This report provides the research findings related to each project objective.

To establish the breadth of current WIL experiences available at postsecondary institutions, a review was conducted of existing WIL typologies with attention paid to various dimensions by which WIL opportunities may be distinguished. To ensure the capture of any new or novel forms of WIL being offered at Canadian or international institutions, the literature review was complemented by a review of news sources from the past five years, using the archive of the Academica Top Ten. This was supplemented by a review of WIL opportunities at a selection of Canadian postsecondary institutions.

¹ For the purposes of this report, the term “students” refers to university undergraduate students and college and polytechnic certificate, diploma, advanced diploma, and degree students.

The environmental scan revealed that a concrete definition of WIL remains elusive. Depending on the context, WIL may be used to refer to activities ranging from co-operative education placements to community service work and applied research projects. For the purposes of categorizing WIL activities, seven core types of WIL were identified, each of which may subsume a variety of specific activities:

- Apprenticeship
- Co-op
- Internship
- Field experience
- Mandatory professional practice
- Applied research project
- Service learning

In addition, two “emerging” types of WIL were identified as being worthy of special consideration, along with one way of recognizing/documenting WIL experiences:

- Incubators and accelerators
- Bootcamps and hackathons
- Badges/Co-curricular records

For each type of WIL identified, a profile was constructed comprising a title, a clear description, distinguishing characteristics, and examples of corresponding programs at Canadian institutions. Additionally, data suggestive of the outcomes of each of the core types of WIL were provided, as well as any best practices suggested by available literature. A high-level set of best practices were also documented that are broadly applicable to the design and development of WIL programs in general.

Finally, data sources that can inform our understanding of how many Canadian PSE students currently participate in WIL before they graduate were collated through contact with key postsecondary organizations and online searches. A total of seven relevant data sources were found. A summary of each data source was prepared as well as an overview of the data gaps and challenges.



WORK-INTEGRATED LEARNING IN CANADA
DEFINING WIL



COMPETING DEFINITIONS

There remains little consensus around any single definition of the term work-integrated learning (WIL). As Sattler (2011) notes, a number of scholars point to the complexity and contestation around terms like “work,” “learning,” and “workplace,” while others emphasize the vagueness of some definitions as well as similarities between WIL and other related terms. Some academic sources define WIL in relation to programs that fall under the term, while others define it in terms of its goals and desired outcomes (Sattler 2011). Moreover, as the imperative to offer practical, work-related instruction becomes ubiquitous, WIL has become embedded in marketing language, with each college, university, and polytechnic marketing, delivering, and measuring WIL differently.

To add to the confusion, “work-integrated learning” is frequently used interchangeably with other similar, related, or overlapping terms, including “work-based learning,” “practice-based learning,” “work-related learning,” “vocational learning,” “experiential learning,” “co-operative education,” “clinical education,” “internship,” “practicum,” and “field education” (Stirling et al. 2016). Many of these terms are used in other contexts to describe types of WIL rather than WIL itself and there is often little agreement around the definitions of these terms. This inconsistency can have funding and administrative implications, and can create confusion among employers and students about the objectives and expectations of WIL programs (Connor & MacFarlane, 2007; Patrick et al., 2009).

Experts interviewed by Rosse and Brown (2013) frequently cited a lack of common language around WIL as a barrier to the development of a unified strategy. While acknowledging that the diversity of fields and programs presents significant challenges, they argue that there is “a fundamental need for a shared WIL language and discourse ... and a shared frame of curricular reference and meaning so that extended and inclusive conversations can take place.”

FINDING COMMON GROUND

Despite the diverse ways in which WIL is defined, there are a number of commonalities between different forms of WIL that serve to distinguish WIL from work experience and from other forms of experiential learning (Sattler 2011). Cooper et al. (2010) identify seven key dimensions:

- Purpose
- Context
- Nature of the integration
- Curriculum issues
- Learning
- Partnerships between the institution and the workplace or community
- Support provided to the student and workplace or community

Rosse and Browne (2013), meanwhile, note curricular patterns and commonalities in WIL courses in Australia that persist across several disciplines. Focused on the learning goals of WIL courses, they list a number of common objectives:

- Broadening understanding by introducing aspects of a profession or role, work, work contexts, or work culture
- Responding to community needs and culture
- Developing specific skills within a real work or community setting
- Applying, developing, and enhancing knowledge and skills acquired in the classroom in a work/community setting
- Analyzing and researching specific aspects of the work or community contexts
- Developing integrative knowledge

Rosse and Browne further note that the goals of WIL programming typically address various work- and community-related issues including ethics, professional skills, and cultural and social aspects of the work or community setting.



For the purposes of this report, we advocate for a broad definition of WIL that will facilitate a better understanding of the range of WIL experiences currently available to students. A broad definition also serves to inform further discussions about what types of experiences should be considered under BHER's work. As such, we adopt Billett's (2009) definition of WIL as:

The process whereby students come to learn from experiences in educational and practice settings and integrate the contributions of those experiences in developing the understanding, procedures, and dispositions required for effective professional practice, including criticality. Work-integrated learning arrangements include the kinds of curriculum and pedagogic practices that can assist, provide, and effectively integrate learning experiences in both educational and practice settings (Billett, 2009: v).

Billett helpfully frames WIL in terms of its objectives while simultaneously emphasizing that it is an active process that integrates experiences from the work or community setting as well as the classroom. As Stirling et al. (2016) note, "the benefits of work-integrated learning are not implicit within the work itself, but rather in the integration of theory and practice facilitated through the work-integrated learning experience." Billett's definition foregrounds these critical aspects of WIL and thus serves as the most helpful definition in terms of productively identifying the full range of WIL experiences.

WIL TYPOLOGIES

Due to the inconsistent terminology used to describe WIL, a number of attempts have been made to develop frameworks for understanding the sheer variety of WIL programs. Rosse and Browne (2013) classify typologies of WIL into four categories:

- **Learning-related:** Typologies grouped by method of assessment, by types of knowledge development, or by learning type
- **Structure components:** Grouped by duration and timing in the program
- **Mixed attribute:** grouped by multiple criteria including types of field experiences, duration, and timing

- **By constructs from learning theory:** grouped by alignment with various learning theories and distinguished by purpose

Sattler (2011) offers a useful overview of WIL typologies and frameworks constructed prior to 2011, incorporating various aspects of each into her own typology devised for Ontario's postsecondary sector. She notes that a number of these frameworks are useful from a theoretical perspective but are problematic in terms of providing a schema for classifying specific WIL programs because many such programs incorporate elements of several models (Sattler 2011). Based on her research, Sattler developed a typology of WIL that is in wide usage today. This typology identifies seven types of WIL, distinguished by various characteristics, and organizes them into three main categories:

- Systematic training (workplace as the central place of learning)
 - Apprenticeships
- Structured work experience (familiarization with the world of work within a PSE program)
 - Co-op
 - Internships
 - Mandatory professional practice
 - Field experience
- Institutional partnerships (PSE activities/ programs to achieve industry or community goals)
 - Applied research projects
 - Service-learning

The typology is not intended to be exhaustive, but is rather meant to serve as a conceptual framework to stimulate discussion and reflection.

Since the time of Sattler's research, alternative frameworks have been proposed. Rowe, Mackaway, and Winchester-Seeto (2012) organize WIL based on two primary factors: location (on campus or off) and level of community engagement.

As Ferns, Campbell, and Zegwaard (2014) note, such a model—which identifies three dozen activities as being included under the umbrella of WIL—"highlights the complexity of providing a single definition for WIL, but also shifts thinking away from

a linear continuum of superiority toward appreciating the purposefulness of particular activities.” This model helpfully suggests not only the broad scope of activities that institutions can and should consider when developing WIL-related programming, but also highlights points of intersection between the educational institution and the workplace or community partner. However, in focusing on the responsibilities and priorities of these partners, this research does not adequately reflect the role of the student in WIL. It also includes a number of activities under the rubric of WIL that are better understood as experiential learning (e.g., case studies, lab work, simulations, etc.). This distinction between experiential learning and WIL is important, as WIL should be thought of as just one form of experiential learning.

Leong and Kavanagh’s (2013) framework for WIL constitutes what they describe as a “progressive approach in embedding skills in selected courses.” While this framework was developed for a specific university, its focus on the student is a useful contrast to Rowe, Mackaway, and Winchester-Seeto’s typology. Within this framework, Leong and Kavanagh identify four types of WIL available to students: work samples and training, industry / community projects, work placements, and professional practicums. Leong and Kavanagh plot each type against two axes. One axis measures the degree to which a program is university-based or workplace-based; the second measures the level of competence required to complete the WIL experience. Each type of WIL further corresponds to a student’s progression within a program.

In contrast to Rowe, Mackaway, and Winchester-Seeto’s approach, this framework reflects the desired outcomes in terms of the student as a participant in WIL. Within the framework, experiences are linked to students’ levels of proficiency that target, but do not necessarily correspond with, a student’s year of study. The risk presented by this model is that in positing that particular forms of WIL correspond to levels of competency, the opportunity for certain WIL programs, such as co-ops or project-based research, to be integrated throughout a program is de-emphasized.

In order to document the breadth of current WIL experiences available at Canadian postsecondary institutions, we have adopted a model that is heavily based on Sattler’s typology (2011). Sattler’s methodology is most useful for the purposes

of this report, which is intended to provide an environmental scan suggestive of the breadth of WIL offerings in Canada. However, new developments in both the academic approach to WIL as well as in the delivery of WIL at institutions must be considered. Therefore, we consider the growth of alternative forms of WIL that have been popularized in the last five years and suggest how they may be incorporated into the existing typology.



WORK-INTEGRATED LEARNING IN CANADA

OPPORTUNITIES

TYPES OF WIL

We have identified nine types of WIL that are currently used in Canadian postsecondary institutions: Apprenticeship; Co-op; Internship; Field experience; Mandatory Professional Practice; Applied Research Project; Service Learning; Incubators and Accelerators; and Bootcamps and Hackathons.¹ In addition, we discuss Badges / Co-Curricular Records as an emerging way of documenting WIL experiences. For each WIL type we provide a brief definition as well as summary information regarding the main educational purposes, modes of delivery, common programs/sectors, duration, compulsory/optional, role of student, role of employer/host, role of institution, evaluation and assessment, and other terms used. This is followed by three to four examples taken from postsecondary institutions in Canada.

¹ While some typologies include guest speakers and case studies as WIL types (Pilgrim and Koppi, 2012), we have not included these here as we feel they do not meet our working definition of WIL.



SYSTEMATIC TRAINING

APPRENTICESHIP

Apprenticeships combine in-school training for employment in a skilled trade or occupation with on-the-job workplace training. According to Polytechnics Canada, an apprenticeship program generally combines four levels of classroom training alternating with on-the-job training, usually over a minimum of four years. Workplace-based training comprises approximately 80–85% of the training. Apprentices acquire practical skills under the direction of a Certified Journeyman. The remainder of the training is provided in the classroom at a college or polytechnic, a union training centre, online, or with a private trainer. This instruction complements the workplace-based training with theoretical and technical skills and concepts.

The onus is typically on the prospective apprentice to find an employer willing to provide the required training. The apprentice enters into a paid employment agreement with the employer; this contract is registered with the appropriate provincial or territorial authority. While primarily an industry-based form of training and certification, provinces and territories are responsible for legislating, administering, regulating, and certifying apprenticeships.

Studies of apprenticeships have cited challenges faced by both employers and apprentices. Employers may be reluctant to take on apprentices due to the time and cost involved (Gallagher and Kitching 2003); some employers have also expressed concerns about apprentices getting “poached” upon completion of their training (Brisbois et al. 2008). Student interview subjects participating in an examination of apprenticeships in Ontario have cited difficulties including getting quality on-the-job experience as well as difficulty balancing on-the-job training with classroom training as a barrier to completion. Students in the same study also noted a lack of communication between stakeholders as an issue: college stakeholders were unaware of completion rates; employers were unaware of changing requirements for apprenticeships; and apprentices were unaware of ministry incentives available to them (MacDonald-Jenkins & Cornish 2015). Other challenges include long waitlists in some high-demand professions and a lack of adequate space at postsecondary institutions. Mobility of apprentices between provinces has also historically been an issue; however, recent agreements between the provinces such as the Atlantic Apprenticeship Harmonization Project and the Provincial-Territorial Apprentice Mobility Protocol are intended to make it easier for apprentices to work anywhere without interrupting their training.

Some apprenticeships are now beginning to adopt hybrid models. A report published in 2015 by the Higher Education Quality Council of Ontario (HEQCO) found that hybrid apprenticeship programs, which combine online theory courses with in-class learning, may be able to achieve outcomes comparable with traditional in-class programs in half the time. The study, which examined Industrial Mechanic Millwright apprentice programs at Durham College and Sault College, found no significant difference in completion rates, grades, satisfaction, or engagement and retention between hybrid and traditional approaches (MacDonald-Jenkins & Cornish 2015).

In their review of Ontario’s apprenticeship program, Clark and Jurmain (2014) note that federal government programs have contributed to an increase in the number of apprentices in Canada from 200,000 in 2001 to nearly 400,000 in 2010. However,



apprenticeship completion rates over the same period did not improve.

A number of researchers have complained about a lack of data around apprenticeship completion rates. A 2001 study by SkillPlan BC noted that many apprentices who received poor formative test results simply moved out of the apprenticeship system; but the study also acknowledged that a lack of good data made it impossible for researchers to draw firm conclusions about the cause of this issue. These researchers speculated that the poor test results may have been caused by a lack of basic numeracy and literacy skills, an assertion that was corroborated by unsubstantiated testimony from apprenticeship instructors. The SkillPlan BC study also noted that instructors reported that as many as 40% of students who began apprenticeship programs did not complete their studies (Clark and Jurmain 2014; SkillPlan BC 2001). A 2012 Statistics Canada report similarly identified an issue with completion rates, noting that while the number of Canadians enrolled in apprenticeship programs more than doubled between 1995 and 2007, the number of successful completions over the same period increased by just one-third (Laporte and Mueller 2012).

Using data from the 2007 National Apprenticeship Survey (NAS), Laporte and Mueller found that individuals who completed their apprenticeship programs or obtained certification received higher wages; those individuals who both completed their program and obtained certification had wages that were higher yet. Individuals who completed their training and had certification earned an average of \$28.07 per hour, while those who discontinued their training but achieved certification earned an average of \$27.25. Individuals who completed training but did not get certification earned an average of \$23.02 hourly, and those who did not complete the training and did not obtain certification earned \$23.30. The differences were more pronounced among those individuals working for others than those who were self-employed. Those who completed programs were less likely than non-completers to be self-employed, though this result is consistent with the fact that completion is required for work in many fields.

Gunderson and Krashinsky (2011) found that men who completed an apprenticeship earned 24% more than men with a high school diploma, 15% more than men who were in the trades but had not completed an apprenticeship, and 2% more than college graduates. However, women did not see the same earnings bump. Gunderson and Krashinsky found that for women, completing an apprenticeship “yields lower returns than simply completing high school and substantially lower returns than completing college.” They suggest that this may be due to the fact that women predominantly pursue apprenticeships in lower-wage professions in food and service industries.

The Conference Board of Canada has recommended harmonization of the apprenticeship system in Canada, noting that the lack of a harmonized system, such as that employed in Germany, creates barriers to mobility and makes it more difficult for individuals to find work in other provinces. The Conference Board also recommends the expansion of apprenticeships to non-traditional trades such as banking, insurance, and media, depending on industry requirements. Finally, the Conference Board recommends increasing the role of employers to provide more thorough quality assurance and to ensure that apprenticeship programs remain relevant to industry needs (Conference Board 2015).



Main educational purposes: workforce training; skill acquisition; skill mastery; workplace literacy

Modes of delivery: Full-time employment in the workplace; block or day release classroom instruction alternating or concurrent with employment; hybrid format (blend of online and in-classroom work) with workplace employment

Common programs/sectors: Services; motive power; industrial; construction; Red Seal trades

Duration: Variable

Compulsory/optional: May be required for certification

Role of student: Self-directed learner

Role of employer/host: Worksite mentorship, supervision, and evaluation by a qualified journeyman

Role of institution: Academic instruction

Evaluation and assessment: Work-site evaluations based on time or competency; employer evaluates and reports to appropriate governing body.

Other terms: VET; vocational education

Example:

- Red River College
 - Apprentice Aircraft Maintenance Journeyman
 - The program is a partnership between Apprenticeship Manitoba, an aircraft maintenance provider (the employer), an apprentice (the student) and Red River College (the training provider).
 - The apprentice is employed by an approved aircraft maintenance organization and for nine weeks of the year attends structured training at Red River College.



STRUCTURED WORK EXPERIENCE

CO-OP

Co-op programs alternate periods of study with work placements, offering students a structured approach that integrates their academic studies with work experiences in a related field. Co-op placements can be resource-intensive, with the burden being placed not only on the student but also on the institution, which is responsible for the administration of job placements, operational costs, and the hiring of additional faculty to accommodate the program. In Canada, co-op programs have been especially popular among college students but have increasingly been made available at the university level. Co-ops tend to be most common in technical fields but have in recent years expanded to other programs as well, including the humanities. While they are primarily available to college and university diploma and undergraduate students, some institutions have introduced co-op programs at the graduate level as well. In certain program areas, such as engineering, co-op experience may apply toward professional certifications.

A longitudinal study of more than 10,000 university graduates found that co-op graduates earned salaries 22.2% higher than those of their non-co-op peers in their first year in the workforce (Drysdale and Goyder 2009); university co-op graduates were also found to have been more likely to have paid off their PSE debts after graduation (Bayard and Greenlee 2009; Downey, Kalbfleisch, and Truman 2002; Haddara and Skanes 2007). University co-op graduates have also been found to be less likely to be overqualified for their jobs (Downey, Kalbfleisch, and Truman 2002; Frenette 2004).

Some researchers found that earnings and employment rates were higher among Canadian university co-op graduates, while no differences in earnings or employments were found at the college level (Bayard and Greenlee 2009). Additional research has suggested that advantages may be limited to certain programs (Darch 1995; Haddara and Skanes 2007) and may dissipate after four or five years (Haddara and Skanes 2007). Co-op programs have also been found to facilitate graduate entry into the labour market at both the college and university level (Darch 1995; Downey, Kalbfleisch, and Truman 2002; Walters and Zarifa 2008).

Studies have produced mixed results regarding the effects of co-op on skill development. A survey of 158 workplace supervisors of co-op students and interns across the US found that students were perceived to be better-than-average employees in four measures (having a positive effect on other employees; functioning as a team player; creative thinking; taking constructive criticism), but were not perceived to be any different from other employees in eight other competencies. Moreover, co-op students and interns were rated as being below average on leadership and computer literacy (Bartkus and Stull 2001). A 2008 study of 80 US employers of recent engineering grads found no differences between employer ratings of work-related competencies for new graduates of co-op programs and non-co-op graduates (Reio, Jr. and Sutton). However, the researchers noted that employers rated co-ops better on almost all measured competencies.

Main educational purposes: integration of theory and practice; career



exploration and development; progressive skill acquisition; professional socialization; workplace literacy; workforce readiness

Modes of delivery: Block placement alternating with academic program

Common programs/sectors: Business; IT; engineering; computer science; health sciences; hospitality/tourism; applied/physical sciences; math; arts; social sciences

Duration: Work terms are typically one semester (4 months) but may be consecutive; minimum 3-6 work terms required for co-op designation; work-terms must make up at least 30% of program

Compulsory/optional: Usually optional to select co-op stream

Role of student: Full-time employee engaged in productive work

Role of employer/host: Supervision, evaluation

Role of institution: Set learning objectives and approve host site; assist with student selection; monitoring and assessment

Evaluation and assessment: Formative and summative; faculty/co-op staff assess student portfolio, written work term reports, structured reflections, class presentations; employer reviews student performance and work-term report

Other terms: Experiential learning

Examples:

- Fanshawe College
 - Architectural Technology
 - Students complete four paid co-op work terms over the course of their program.
 - A mandatory co-operative education employment prep workshop is taken that outlines students' role and responsibilities and the Co-operative Education Policy to prepare students for their work terms.
- University of British Columbia
 - Arts
 - UBC's arts Co-op program allows students to alternate academic terms with paid work experience. Students completing the program will gain 12—16 months of professional work experience. In addition to being available to undergraduate students, the program also allows students in UBC's Master of Public Policy and Global Affairs program, as well as its PhD in English program, to participate.
 - Students must apply to the program and are evaluated based on their communication skills, leadership, time management, professionalism, and motivation.



- Students earn on average \$30,000—\$40,000 over their 3—4 work terms.
- Students who complete 3—4 work terms of 4 months in length receive a co-op designation on their transcript.
- University of Waterloo
 - Computer Engineering
 - Students alternate 4-month school terms with 4-month paid work terms throughout their program, beginning in first year.
 - The program touts numerous competitive and financial benefits, including a high placement rate, job skills, financial benefits, and opportunities to travel.
 - Students take a non-graded, online course providing them with the basic skills they need to prepare for a successful co-op experience, including how to write a résumé, interview skills, and job expectations.
 - Students must apply to jobs that interest them rather than being placed in a job.


INTERNSHIP

Internships are work experiences, typically a year or more in duration, that occur near or at the end of a program of study, often as a capstone (Groenewald 2004). Workplace supervisors are encouraged to mentor students as they participate in meaningful work or engage in job shadowing. Internships may be completed for academic credit, but are typically less structured than co-operative education. A recent study of Ontario internships found substantial variation in internship prerequisites and in work conditions (Stirling et al, 2014). Stirling et al. (2014) found significant discrepancies in salary, the number of hours required for internship completion, length of the internship, and fees to participate. Moreover, they note that the activities and conditions required for completion of an internship varied greatly as well. Much of the literature around internships has focused on business programs; however, they are available across a variety of different programs.

Studies on the impact of internships have found conflicting results. Some have determined that placements positively affected students' academic performance, while other studies have suggested no impact. In some studies, alumni who completed internships were found to receive job offers sooner than their peers and to report higher levels of job satisfaction; however, other studies have pointed to the converse. A survey of university administrators found strong agreement that internships help strengthen connections between universities and the community, support recruitment efforts, and enhance institutions' reputations (Weible 2010).

There has in recent years been significant controversy around compensation for internships, with various student groups as well as elected officials seeking to prohibit unpaid internships.

Stirling et al. (2014) review a number of benefits related to internships that have been identified in academic literature. For students, these include the integration of classroom learning and professional practice; the opportunity to solidify knowledge



acquired in the classroom; an enhanced understanding of personal characteristics; opportunities for career exploration; career exploration; an increase in perceived employability; and expedited employment upon graduation. Institutions, meanwhile, benefit from improved communication with businesses in the community; opportunities for curriculum content evaluation; expanded student recruitment; and enhancements to reputation. Finally, employers may benefit from access to high-quality temporary employees; access to current theoretical knowledge; enhanced morale among colleagues; and the opportunity to select from high-quality, pre-screened graduates.

US students who completed internships reported salaries that were 10% higher upon graduation and 17% higher two to three years after graduation (Gault, Redington, and Schlager 2000). Studies on the impact of business internships also found an improved fit between graduates' career goals and their post-graduation employment (Callanan and Bensing 2004). Various studies conducted with business interns in the United States (Gault, Redington, and Schlager 2000; Knouse, Tanner, and Harris 1999) and with engineering interns in the United Kingdom (Bowes and Harvey, 2000) found a higher level of employment among graduates of internship programs than non-interns, as well as a faster rate of promotion for interns (Gault, Redington, and Schlager 2000). These findings have been corroborated by subsequent research.

According to Narayanan, Olk, and Fukami (2010), Peretto Stratta (2004), and Rothman (2007), students rate their satisfaction with internships on criteria including:

- Monetary or in-kind compensation
- Convenience of the internship location
- Timing of the internship (e.g. duration, alignment with academic schedule)
- Exposure and networking opportunities
- Task completion (e.g. successful completion of assigned projects)
- Feedback opportunities.

As Stirling et al. (2014) comment, “students seeking internships expect the experience to be educational and to enhance their professional development. In addition to providing hands-on practical experience and skill development, students are interested in learning more about their field of study and networking with practitioners in the field.”

Stirling et al. (2014) examined 77 internship programs at colleges and universities in Ontario, uncovering significant differences both within and across academic disciplines. They note that the present design and delivery of internship programs often neglect educational requirements, and that too often programs assume too much about students' ability to connect classroom learning and practical experience. They call for a more structured approach, informed by experiential learning theory, and offer three specific recommendations for improvements:

1. Establish explicit learning activities that target each stage of Kolb's experiential learning theory
2. Establish clear roles and responsibilities for all parties involved in the internship (i.e. student, institution, and employer)



3. Emphasize the standard of education over the standard of employment

Stirling et al. further recommend the development and evaluation of an internship program toolkit that would provide tools including samples of course content, best-practice guidelines, and learning activity templates.

Main educational purposes: Integration of theory and practice; personal development; career exploration and development; professional socialization

Modes of delivery: single block placement at end of program; single block program alternating with academic program; defined number of hours per term, concurrent with classroom work

Common programs/sectors: Business; marketing; social sciences; engineering

Duration: Typically long (12–16 months) but may be shorter

Compulsory/optional: Generally optional but may be a compulsory part of some programs

Role of student: Full-time or part-time employee engaged in productive work; may be observer

Role of employer/host: Mentoring; supervision; evaluation

Role of institution: Assessment

Evaluation and assessment: Student is evaluated by employer; faculty assesses student's structured reflections and reports

Other terms: Sandwich course; Virtual internship

Examples:

- University of Saskatchewan
 - Engineering Professional Internship Program
 - Engineering students have the option of completing a full-time paid internship. The internship is a minimum of eight months.
 - Prior to beginning the internship, interns attend a required orientation session. During the internship a faculty supervisor is assigned to each intern to provide guidance, support, and reporting feedback, and four technical reports and employer evaluation forms are submitted throughout the internship.
- McGill University
 - Institute for Health and Social Policy (IHSP)
 - The IHSP internship program offers research opportunities and training to graduate and undergraduate students at McGill. Between seven and 11 internships are offered in the Fall and Winter terms.
 - Interns spend 10 to 15 hours per week on a project defined by their supervisor, and attend training sessions with their cohort for one to two hours every week.

- A \$2,000 award is provided.

MANDATORY PROFESSIONAL PRACTICE

Mandatory professional practices include any professional practice-based arrangements that are required for professional licensure or designation. These may be paid or unpaid opportunities and may include clinical placements, practicums, and preceptorships. Students participate in activities that are considered core to the curriculum and necessary for successful completion of the program, and are closely monitored by individuals working on behalf of the institution. Students benefit from improved awareness of career prospects, the development of their job skills, and enhanced employment prospects. However, some studies have pointed to limitations including a lack of success integrating theory and practice, a narrow focus on technical skills, and inconsistent supervision (Ryan et al. 1996). In addition, securing sufficient high-quality placement sites is a perennial concern for postsecondary institutions (Barrie 2006). Simulated experiences are sometimes used to address this challenge, providing students with an immersive experience in a highly realistic environment. Simulated experiences are generally used as a preparation for a workplace-based experience, though a recent U.S. study focused on nursing found that high-quality simulation experiences can be used to substitute up to half of traditional clinical placement hours (Hayden et al. 2014).

Main educational purposes: Integration of theory and practice; career exploration and development; progressive skill acquisition; professional socialization; workplace literacy; workforce readiness

Modes of delivery: Block placement alternating with academic program; defined number of hours per term concurrent with classroom work; single block placement, often at the end of the program; simulated work activities (concurrent)

Common programs/sectors: Education; health sciences (nursing, medicine, dentistry, pharmacy, optometry); social work; accounting; engineering; veterinary; law; kinesiology

Duration: Variable

Compulsory/optional: Compulsory; required for professional certification/licensure

Role of student: Begins as observer; becomes practitioner

Role of employer/host: Mentoring; supervision; evaluation

Role of institution: Guided reflection; monitoring; assessment

Evaluation and assessment: Formative and summative; faculty assesses student's reflective journals, field notes, and presentations; student is evaluated by host and must demonstrate professional competencies; student self-evaluation

Other terms: Practicum; field education; field work; field placement; clinical placement; preceptorship; simulated clinical experience



Examples:

- University of British Columbia
 - Dietetics
 - Fifth-year students in the Dietetics program participate in a comprehensive 39-week internship in settings including hospitals, long-term care facilities, and community organizations. They are supervised by preceptors as they develop competencies required of an entry-level dietitian.

- University of Regina
 - Social Work
 - Students complete two field education experiences, which involve direct practice in social work agencies and other settings. The practicum is complemented by seminars intended to provide theoretical learning related to the practicum experience. Students present what they learn with their peers through case presentations and by studying emerging practice issues.

- Dalhousie University
 - Social Work
 - Students complete 700 hours of agency-based field work in a real-world setting to practice concepts taught in the rest of the program.
 - Students must participate in an integrative seminar facilitated by their faculty advisor as well as prepare a paper on the student's Social Work Framework for Practice and present their Framework for Practice at a meeting in the placement agency attended by various key personnel.

- Michener Institute for Education at UHN
 - Medical Laboratory Science
 - Students complete 10 weeks in a simulated clinical environment prior to starting their clinical rotation, and then 10 weeks at a clinical site such as a hospital or private laboratory.



FIELD EXPERIENCE

Field experiences include placements and work-related experiences that prepare students for professional or occupational fields but that are not required for professional certification or licensure. Field placements are intended to provide students with hands-on experience in the workplace and are frequently necessary for completion of the student's program. The experience may take place off-campus at business or community sites, or may occur on-campus at campus-led or student-managed businesses, clinics, or simulation labs. Students are often responsible for selecting their own field experiences, and they typically do not receive a regular salary or wage from the employer for the experience (Bates 2003). Desired learning outcomes may range from the specific, such as developing an occupational skill, to the very general, such as learning about the employment context of an academic field. Field experience may include simulated experiences that allow students to apply their knowledge or test concepts in theories in computer simulations, role-plays, or practice firms. Field experiences have been found to be effective for developing interpersonal and intrapersonal skills in students (Lucas & Tan, 2007), and have been linked with improved self-efficacy when the placement is related to the students' area of interest (Lucas et al. 2009).

An ongoing challenge with field experiences is difficulty finding sufficient placements for all interested students. This problem is particularly acute among international students who are often less able to locate placements on their own (Jones et al. 2009). Simulations help address this challenge to some extent but may not always be a suitable alternative. Another issue is the inconsistent quality of field experiences for students.

Sprague and Percy (2014) examined the long-term impact of field placements on graduates of Stanford University's Public Policy Undergraduate Practicum Program. The researchers note that most studies on field placements and practicums have focused on the immediate benefits of the experience for both students and client organizations. Whitaker and Berner (2004) note that organizations reported a high level of satisfaction with student work, while Villaneuva, Hovinga, and Cass (2011) found that students participating in Drexel University's School of Public Health practicum program self-reported an increased ability to handle real world problems and a commitment to working in the community. These results are consistent with findings of practicum programs at other US institutions as well, including Eastern Michigan University (Bernstein, Ohren, & Shue 2003) and California State University at Chico (Turner, 2014). Sprague and Percy expanded on this work by distributing surveys to all students who had participated in the Stanford program over the previous five years. They found that the practicum course was linked with improvements in policy analysis skills as well as general professional skills. Students also reported making career decisions based on their practicum experiences, and that they found the skills they developed in the practicum useful in jobs in other industries as well.

Christenson et al. (2015) measured the competency of 457 students in 19 undergraduate social work programs across 18 states as part of an effort to develop, pilot, and validate the Field Placement/Practicum Assessment Instrument (FPPAI), a tool designed to measure student attainment in social work practicums and placements. The FPPAI is based on 10 primary competencies and 41 practice behaviours and focuses on both academic and non-academic measures of these areas. Christenson et al. found that the instrument was a valid and reliable means to measure student practice skills, but they did not report on the results of their evaluation of student competencies. Nevertheless, the instrument is worth noting



as an example of methods that could be implemented to standardize assessment of competencies across a range of institutions.

Best practices for field placements and practicums will vary based on the area of study. However, Regehr et al. (2012) suggest that an optimal experience benefits from a supportive instructor who provides regular, balanced feedback and supervision; facilitates appropriate learning activities; acts as a strong role model; and engages in reflection and self-critique. Various researchers cited by Singh et al. (2015) also emphasize the importance of onsite academic assignments, follow-up, and evaluation. Cleak and Smith (2011) examined student satisfaction with supervision for social work field placements in Australia, identifying a number of traditional and emerging models, including task supervision, group supervision, external supervision, and shared supervision. They conclude that students are most satisfied when there is a strong on-site supervisory presence.

Main educational purposes: Application of theory to practice; attainment of professional or work-related competencies; workplace literacy

Modes of delivery: Block placement (alternating with academic programs); defined number of hours per term concurrent with academic work; virtual work activities (concurrent); simulated work activities (concurrent)

Common programs/sectors: Business; tourism/hospitality; community services; health sciences; communications/journalism

Duration: Typically short (4–6 weeks)

Compulsory/optional: May be compulsory or part of course/program

Role of student: Part-time employee engaged in supervised work

Role of employer/host: Supervision and evaluation

Role of institution: Assessment

Evaluation and assessment: Student is evaluated by employer; faculty assesses students based on reports, structured reflections, and/or class presentations

Other terms: Placement; externship; field work; simulated work experience

Examples:

- Seneca College
 - Tourism
 - Students seeking a Tourism and Travel Diploma complete a mandatory 150 hour unpaid placement spread over their final 14-week semester. Two days a week in the final semester are set aside for the field placement. It is up to the student to obtain a placement.
 - The placement is promoted as facilitating professional development and assisting the student in developing professional contexts in the field.
 - Students must achieve a successful performance appraisal



to complete their field placement.

- College of the North Atlantic
 - Community Studies
 - Students complete a pre-field placement followed by unpaid 4-week and 5-week field placements in semesters 3 and 5 of the program, respectively.
 - Students are responsible for obtaining their own field placements in collaboration with an instructor. Each student is assigned a field placement supervisor who will monitor their progress.
- McGill University
 - Information Sciences / Studies
 - Students in the second year of the Master of Information Studies program participate in a practicum designed to apply concepts and practices and to strengthen skills they develop in coursework. The practicum is an elective course consisting of 100 hours of supervised fieldwork.
- Lakeland College
 - Agricultural Sciences
 - In Lakeland College's unique student-managed farm training model students are actively involved in operating and managing a farm, making six-figure decisions about crops and livestock.
 - Second year students in the Crop Technology program take on specific positions and run the farm, reporting on how their year went at the end of the school year.
- Carleton University
 - Criminology and Criminal Justice
 - Since 1973 Carleton University has been offering an optional field placement to third and fourth year criminology and criminal justice students.
 - Students work eight hours per week at an agency, such as a correctional facility, law office, victim services, etc., and then applied and theoretical knowledge are integrated in seminar classes that occur every other week during the term. The seminar classes include discussion, guest speakers, and presentations.

INSTITUTIONAL PARTNERSHIPS

APPLIED RESEARCH PROJECT

Project-based research is common throughout the humanities, social sciences, and sciences, and it involves students tackling real-world projects. While applied research has long been common in both university and college settings, it has increasingly become a focus of colleges and polytechnics and incorporated into institutional mandates, strategic directions, and mission statements. Applied research is typically driven by one of four motivations: professional (related to practice orientation and work-based learning); democratic or humanitarian (related to service learning); critical (related to scientific issues); and pedagogical (related to deepening one's knowledge of subject matter) (Helle et al. 2006). While project-based learning is often promoted for its ability to deepen the ties between educational institutions and industry, a 2010 study found that this did not occur and recommended that relationships based on applied research could be made stronger if the project work took place in the facilities of the participating companies and if learning objectives were made clearer to industry partners. Applied research may also present assessment challenges (Helle et al. 2006).


Colleges and Institutes Canada reports that its member institutions worked with 5,502 private sector partners and 474 community partners in 2014–15, engaging 31,346 students in applied research (2016). In the same academic year, 105 institutions reported having a dedicated applied research office, and 2,585 faculty and staff engaged in applied research. This work contributed to the development of 347 products, 168 processes, and 87 services, the vast majority of which (86%) were designed or improved in less than one year. 77% of respondents also reported partnering with other colleges and institutions across Canada, and institutions in British Columbia, Alberta, Manitoba, Ontario, Quebec, and the Northwest Territories engaged in 28 international projects involving 19 other countries.

The Colleges and Institutes Canada report also provides some data on student participation in applied research. The organization says that 93% of students who participated in applied research were not paid. The remaining 7% were paid by their institution or industry/college partners as a part-time job, summer job, or internship. The most common approaches to facilitating student engagement in applied research were through in-class projects (81% of respondents) and the integration of applied research into the curriculum (76%). Colleges and Institutes Canada also notes the growing popularity of capstone projects as requirements for program completion.

The 11 member institutions of Polytechnics Canada have, since 2008, worked with close to 11,000 Canadian businesses, conducting 9,900 applied research projects addressing industry-identified problems. These projects have engaged over 68,000 students in hands-on research, and produced approximately 4,000 prototypes for industry research partners. In the 2015/2016 school year alone, 10,518 students were involved in applied research projects at these polytechnics (Polytechnics Canada).

Callaghan (2013) notes that while it is generally understood that applied research projects provide students with valuable work experience as well as connections to potential employers, there is little data to indicate their educational impact. Callaghan's study examined the impact of applied research on 22 students





attending two programs in information and communications technology (ICT). Those students who had completed an applied research experience reported feeling more confident in their abilities when working on a capstone project than those who had not; these students also rated their peers as being less capable than themselves. However, the small sample size of this study means that no firm conclusions can be drawn.

Callaghan does cite research indicating that capstone projects in ICT contexts have been linked to employability skills, including time management, communication, and teamwork. He further identifies a number of challenges associated with designing capstone projects in ICT, including conflicts between faculty and clients and a lack of necessary “soft” skills (Callaghan 2013; Ikonen & Kurhila, 2009; Zhang & Wang 2011). This latter point is notable in that one of the goals of the capstone projects was to develop these skills; however, Callaghan notes that many students whose projects were not successful cited communication, time management, and team management as critical factors. A third challenge identified by Callaghan is the significant preparation time and effort required on the part of faculty before and during project courses. Working with students to develop soft skills prior to the capstone project and clarifying the link between the work being done and future employment were identified as key success factors for capstone projects (Callaghan 2013; Grant et al. 2010). Academic literature on capstone projects also indicates that students frequently look for clearer project goals, though in many cases these are, by design of the assignment, left to be negotiated between the student and the client (Ikonen & Kurhila 2009; Lynch et al. 2004).

Main educational purposes: Application of theory to practice; address specific industry needs; skill development (problem solving, critical thinking)

Modes of delivery: Course-based projects concurrent with classroom work or institutional research projects concurrent with course work

Common programs/sectors: Sciences, environmental studies, technology, business/marketing, communications

Duration: Course-based projects are typically 3 months or less; institutional projects may be longer

Compulsory/optional: May be compulsory for specific courses

Role of student: External consultant

Role of employer/host: Customer

Role of institution: Assessment

Evaluation and assessment: Faculty assess student reports and presentations; informal industry evaluation of student through feedback

Other terms: Industry-led research project; Industry-linked project; Industry project




Examples:

- Algonquin College
 - Algonquin College recently signed a memorandum of understanding with Siemens Canada to offer students opportunities to work in a co-generation power plant at the institution's Ottawa campus. The facility is described as a "living lab" that will generate enough power to cover the campuses' needs while providing experiential learning and sustainability-related applied research opportunities for students.
- SAIT
 - SAIT Polytechnic partnered with Kalen-Hudson Group, a manufacturer of small electronic devices, to design a smart-control thermostat. Researchers, including students, at SAIT's ARIS RFID Application Development Lab helped design the software to support the company's Wi-Fi-enabled thermostats, and develop technologies that will make it easier for facilities managers to monitor and control the temperature in a large number of rooms.
- Cégep de Jonquière
 - Under the direction of the Industrial Research Chair for Colleges in Sustainable Energy Technology and Energy Efficiency at Cégep de Jonquière, students have been able to contribute to applied research projects ranging from designing and manufacturing a test bench to compare the performance of solar thermal panels to developing hydrokinetic river turbines.

SERVICE LEARNING

Service-learning programs may involve a range of activities intended to provide equal benefit to the service provider (the student) and the recipient (the community), while maintaining a focus on learning. Service learning programs serve to promote both civic and academic outcomes. They are typically integrated into the program of study. Service learning can be measured across five dimensions: philosophy and mission; student support and involvement; community participation and partnerships; and institutional support (Butin 2006). Student reflection is typically a critical component of service learning, to a far greater extent than other forms of WIL. Service learning has been found to be associated with increased civic participation and responsibility, though some researchers have contended that it may be more effective if undertaken on a voluntary basis.

A growing body of research suggests that there are many benefits to service learning. Gallini and Moely report that students evaluating service-learning courses were more likely than those evaluating other courses to report that their course "promoted interpersonal, community, and academic engagement, [was] academically challenging, and encouraged their continued study at the university." Davis and Jordan offer a thorough literature review that details findings on the impact of service-based learning. In their review, they cite




Prentice and Robinson's identification of a correlation between participating in community service learning and increased personal awareness, increased social awareness, and improved student learning outcomes (2010). Other research mentioned by Davis and Jordan has found that service learning improves students' sense of efficacy and provides a feeling of personal accomplishment (Astin, Vogelgesang, Ikeda, & Yee, 2000). However, Davis and Jordan do note that a 3-year study of more than 1300 students at 28 institutions found only modest effects on students' civic participation and life skills and no impact on academic or career development (Grey et al. 2000).

A study conducted at the University of Alberta examined survey data provided by 525 students who took a community service-learning course between 2005 and 2012. Student activities included teaching or mentoring, education and outreach, and research and evaluation. 95% of respondents said that participation in community organization helped them develop employability skills, networks, and aided their overall social development. More than two-thirds responded that their experience was beneficial for making future education decisions, while just under two-thirds said that their experience was beneficial for making career decisions. More than half reported that the course helped them develop leadership skills, and roughly two-thirds said that their experience had a significant impact on their ability to respond to complex real-life social issues (61%) and to work effectively with others (69%).

Hébert and Hauf (2015) examined the possible effects of service learning on academic performance. They found that students who participated in service learning self-reported an improvement in civic responsibility, interpersonal skills, and academic development. However, while students demonstrated an improvement in their grasp of concrete course concepts, they did not show any improvement in final examination marks or in their ability to generate detailed examples. Hébert and Hauf suggest that their results may indicate that typical means of measuring academic development may be inadequate for the purposes of assessing academic improvement through service learning.

Howard (2001) has identified 10 "principles of good practice for service-learning pedagogy":

1. Academic credit is for learning, not for service: Students in service-learning courses are assessed for the demonstration of academic and civic thinking, rather than for doing service or for the quality of their service
2. Do not compromise academic rigor: Students must be expected to master academic material as well as learn from unstructured and ill-structured community experiences; moreover, they must effectively synthesize these two pieces. This challenging work should be assessed to a rigorous academic standard.
3. Establish learning objectives: Learning objectives must be made very explicit. Facilitators of service-learning courses must deliberately plan both academic and civic objectives.
4. Establish criteria for the selection of service placements: Institutions must be deliberate when selecting the community service placement. Faculty and administration should base their selection on criteria including the content of the course; the specific activities and contexts involved; the required duration of the experience; and community need.

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5. Provide educationally sound learning strategies to harvest community learning and realize course objectives: learning strategies must support the experiential nature of the service-learning course as well as meet academic objectives. Activities should promote critical reflection, analysis, and application of what is learned through the experience.
 6. Prepare students for learning from the community: Students must be supported before, during, and after their experience. Faculty and institutions should provide learning support as well as examples of how to effectively complete assignments.
 7. Minimize the distinction between students' community learning role and their classroom learning role: Shape each learning environment so that students play a similar role in each context. This is best achieved through a re-orientation of the classroom so that students become accustomed to being active participants and learners.
 8. Rethink the faculty instructional role: Faculty must re-imagine their own role in the delivery of service learning to facilitate active participation on the part of students.
 9. Be prepared for variation in and some loss of control over student learning outcomes: The variability of the service learning experience means that it can be difficult for faculty to retain control over student learning outcomes.
 10. Maximize the community responsibility orientation of the course: The civic learning component of the course should not come only from the service component. Classroom strategies should enhance civic learning as well as academic learning and reinforce civic lessons from the community experience.

Main educational purposes: Integration of theory and practice; address specific community needs; community building; civic engagement; global citizenship; career exploration and development; skill development; personal development

Modes of delivery: Often integrated into a course and is undertaken concurrent with course work

Common programs/sectors: Arts; business; health; social services; education; environmental studies; social sciences; global studies; women's studies; communications; engineering

Duration: Variable

Compulsory/optional: Optional

Role of student: Analytic learner engaged in meaningful work

Role of employer/host: Client

Role of institution: Monitoring and assessment

Evaluation and assessment: Faculty assesses student through structured reflection and/or class presentations

Other terms: Intentional service learning; community-based learning; field



education

Examples:

- McGill University
 - McGill facilitates community service-learning through its Social Equity and Diversity Education Office. Community service-learning is integrated into a wide range of courses. The program emphasizes the use of intentional reflection. Faculty wishing to incorporate a service-learning component to their courses are provided with resources and support through individual consultations with community engagement facilitators and Teaching and Learning Services staff members.
- Nova Scotia Community College
 - Service Learning is a requirement for all NSCC programs, though specific implementations and target learning outcomes may vary across different programs of study. Faculty are encouraged to build relationships with community partners, provide learners with information on service learning, support learning plans and partner agreements, and provide support and guidance during the learning opportunity. The community and partner together develop a service learning plan listing the partner's needs, the learner's activities, and the learning goals for each activity. Students are expected to actively engage in service delivery and to reflect on the meaning of the experience with respect to their citizenship.
- University of Calgary
 - English majors at the University of Calgary have the opportunity to take the "Community Engagement through Literature" course, in which students design, implement and lead activities for the Calgary Public Library's "Homework Help" literacy and learning program for elementary school pupils. The course couples weekly volunteering sessions at a library branch with on-campus seminars where students learn about service learning, make recommendations to enhance the program, and reflect on the relationship between literary studies and public service.

WORK-INTEGRATED LEARNING IN CANADA
OPPORTUNITIES

EMERGING TYPES OF WIL



INCUBATORS AND ACCELERATORS

One recent development in WIL has been the popularization of incubators and accelerators. Intended primarily to promote entrepreneurship, an incubator is “an enterprise or facility that directly supports the early-stage development of new business ventures by providing things like office space, shared business or legal services, and other forms of business assistance” (Sá, Kretz, and Sigurdson 2014). Incubators are formal or informal spaces catering to aspiring entrepreneurs who typically must apply to receive access to the space and its resources. Qualified applicants may receive funding, supervision, and mentorship from experienced practitioners. Accelerators offer similar services but for more advanced ventures.

In recent years, the scope of services offered by incubators and accelerators has expanded beyond business enterprises to include social initiatives as well. Funding for accelerators and incubators is available through the Canada Accelerator and Incubator Program, which in 2015 disbursed \$10.7M to Ryerson University, Simon Fraser University, and the University of Ontario Institute of Technology to support incubator and accelerator initiatives. Incubators may be developed in collaboration with external partners, who provide financial support as well as access to subject matter expertise. Sá, Kretz, and Sigurdson (2014) classify incubation and acceleration as extracurricular opportunities that provide students opportunities to develop their ideas. In some cases, students earn course credits for participating in incubation activities; in other cases, students can participate in competitions or access campus-based funding opportunities.

Main educational purposes: Entrepreneurship; career exploration and development; application of theory to practice; skill acquisition; skill mastery

Modes of delivery: Ongoing engagement

Common programs/sectors: Business; technology fields

Duration: Variable

Compulsory/optional: Optional

Role of student: Entrepreneur; service provider

Role of employer/host: Mentor; provides subject-matter expertise

Role of institution: Facilitates relationships and provides resources

Evaluation and assessment: Optional; may include competitions

Other terms: N/A

Examples:

- Ryerson University
 - The DMZ, based at Ryerson University, opened in 2010 and within five years of launching had supported 243 startups that had raised \$172 M in seed funding. The DMZ does not cater only to students; its resources are also available to graduates and other entrepreneurs.
 - Support is offered for student-led companies that do not qualify for access to the DMZ through RyersonU’s Launch Zone, described as a “creative collision space.” Launch Zone is accessible to all students, and offers programs including one-on-one idea consultations; fireside chats on topics related to career development, entrepreneurship, and entrepreneurship trends; and seed funding, business training, hands-on coaching, and mentoring.
- Simon Fraser University:
 - VentureLabs® is described as “a world-class technology business accelerator program delivered by Simon Fraser University in partnership with the [National Resource Council Industrial Research Assistance Program], the BC Innovation Council, university partners including Ryerson University, the University of Ontario Institute of Technology, the University of Victoria, the British Columbia Institute of Technology, the Emily Carr University of Art + Design, government, and industry partners.” VentureLabs® pairs qualifying entrepreneurs with “Executives-in-Residence,” who provide advice on various aspects



of business development including product and marketing validation, customer value propositions, and business models. The program also provides guidance and access to additional mentors, subject matter expertise, financing sources, and recruitment strategies.

- RADIUS (RADical Ideas, Useful to Society), affiliated with SFU's Beedie School of Business, is a social innovation lab and venture incubator dedicated to tackling social challenges. RADIUS works on three key “levers”: RADIUS Edu, dedicated to “creating more and better Radical Doers” by supporting entrepreneurship and innovation curriculum at SFU; “RADIUS Lab,” working with community partners to understand critical problems and potential interventions; and “RADIUS Ventures,” which identifies and amplifies emerging social ventures. RADIUS also offers programs such as the RADIUS Trampoline, an eight-week market validation program that provides developing social enterprises with access to coaching, frameworks, and exposure through RADIUS's communication channels.
- University of Waterloo:
 - Velocity is the University of Waterloo's entrepreneurship program. Providing knowledge, tools, space, and expertise to startups and entrepreneurs, it is reportedly the largest startup incubator in the world. Velocity provides workspaces, events, mentor programs, and even a residence that offers students the opportunity to live among entrepreneurially minded students. The Velocity Start is a 6,000-square-foot on-campus space that provides access to resources including 3D printers and hand and power tools; it also facilitates workshops and “problem labs” in which students discuss and develop solutions to significant issues and challenges. Velocity also partners

with uWaterloo's Faculty of Science to provide Velocity Science, which offers workshops, lab access, technical resources, and workshops to science entrepreneurs.

BOOTCAMPS AND HACKATHONS

Generally focused on software development, bootcamps and hackathons have in recent years emerged as a means for computer programmers and interface designers to develop or showcase their skills. According to CourseReport, a website that publishes reviews of bootcamps, the industry was expected to graduate more than 16,000 students across North America in 2015, up from 5,987 in 2014.

Bootcamps are usually private educational opportunities, not associated with public postsecondary institutions. They are short-term (often 9–12 weeks), intensive courses focused on practical skill development related to software or web development. In many cases, bootcamps are pitched as being supplementary to other education credentials, or as a more practical alternative to university computer science programs. Bootcamps also claim to be more agile and responsive to industry change than established postsecondary institutions. They promise participants the opportunity to acquire in-demand technical skills in a very short time period. Bootcamps generally emerge in cities that are strong tech hubs, including Toronto, Vancouver, Montreal, Calgary, and Waterloo. Some bootcamps, such as Bitmaker Labs, boast as high as a 90% placement rate for graduating students. Tuition fees can be considerable: according to CourseReport, the average program cost in North America was \$11,063 in 2015.

Bootcamps are regulated in only two provinces, British Columbia and Ontario. In Ontario, camps must either receive MTCU approval or be granted an exemption; in BC, camps must comply with Private Career Training Institutions Agency regulations. Due to a general lack of oversight over bootcamps, the quality of instruction and curriculum can vary considerably between offerings; moreover, the pace and intensity may not be suitable for all learners.

Some institutions in the United States, including Northeastern University and Bellevue College, have recently begun offering their own bootcamps. Beginning in September 2016, Bellevue, in partnership with bootcamp provider Coding Dojo,

will provide participating students with two days of classroom instruction per week at their continuing education campus. The classroom learning is supplemented by assignments administered online through Coding Dojo’s learning management system. The students will not be enrolled as credit-seeking students at the college. The course is targeted at working professionals looking to enhance their technical skills. A staffing firm will work with graduates to secure work upon completion of the program. In contrast to Bellevue, Northeastern University has elected not to partner with an existing bootcamp platform provider. Their bootcamp, called Level, has already graduated 3 cohorts of students. Students are offered several tiers of programming instruction depending on their level of expertise. The program emphasizes experiential learning, with students partnering with an external firm for capstone projects. Nick Ducoff, Northeastern’s VP for New Ventures, reports that 100% of students responding to a survey conducted 6 months after graduation had jobs.

There are also web-based courses that advertise themselves as bootcamps, such as The Odin Project and Free Code Camp. These two initiatives, focused on web development, offer students a free guided curriculum for self-directed study and practice. Free Code Camp partners with a variety of non-profit organizations to provide students opportunities to apply their skills to real-world challenges. Such programs typically provide students with access to mentors who provide assistance via online message boards or chat tools; in addition, students are generally connected with official or unofficial robust community support networks.

Hackathons are events in which developers team up to create usable software or hardware projects over a short period of time, such as a weekend or a week. In most cases hackathons are focused on a particular theme, application type, or challenge. Hackathons provide opportunities for students to develop skills, network with other developers, and solve meaningful challenges. The events are sometimes competitive, with teams presenting their results to judges. In many cases, hackathons are sponsored by industry representatives who use the events as recruiting tools; universities, too, often play host to the events and invite organizations to participate as recruiters, mentors, or sponsors. The events may also help institutions recruit students into relevant programs.

Main educational purposes: Integration of theory

and practice; career exploration and development; skill acquisition; skill mastery

Modes of delivery:

- Bootcamp: Variable-length (9–12 weeks) courses with intensive hands-on practice of skills supplemented by classroom content provided with a “flipped” model.
- Hackathon: Short events (typically one weekend) focused on developing a single workable solution or prototype in response to a specific challenge or goal

Common programs/sectors: Software development and/or engineering; computer science; technology fields

Duration:

- Bootcamps: Highly variable, but typically 9–12 weeks
- Hackathons: Typically 48 hours to one week

Compulsory/optional: Optional

Role of student:

- Bootcamp: Student actively practicing skills as they are developed
- Hackathon: Organizers; self-organized teams of problem solvers

Role of employer/host: Mentoring; supervision; evaluation

Role of institution: Facilitation; mentoring, evaluation

Evaluation and assessment: May be competition based (hackathons) or based on exhibiting specific skills (bootcamps)

Other terms: N/A

Examples:

- HackerYou
 - A Toronto-based bootcamp, HackerYou offers students full- and part-time instruction in web development, user experience design, JavaScript and jQuery, and search engine optimization (SEO). HackerYou's website promises students "no grades, just results," and boasts a 10:1 teacher to student ratio. In addition to 14 instructors, the camp provides access to more than 15 mentors. Students participating in the bootcamp develop content that they are later able to sell to help offset tuition costs. HackerYou also hosts recruitment events and demonstration events to encourage employers to hire its graduates.
- Lighthouse Labs:
 - Lighthouse Labs provides courses in web and iOS development in eight locations across Canada. Between October 2013 and December 2015, they graduated 362 students from their courses; they report that 95% of their job-seeking graduates had accepted employment within 120 days of completing their program. Lighthouse Labs advertises its program as a "flipped, immersive model of education," emphasizing the development of practical skills developed through building real-world applications. Each day includes up to two-and-a-half hours of lecture and eight to ten hours of work in a lab setting. Lighthouse also offers employee-matching services to their network of over 160 employer partners. In addition, many bootcamps take place in spaces shared with other firms to help expose students to the local tech community.
- University of Waterloo
 - The University of Waterloo hosts

an annual Hack the North event, organized by students in partnership with the school's Engineering department. Thousands of students apply to participate each year. Event organizers provide participants of varying skill levels with access to mentors, sponsors, tools, and hardware to help them build their solutions. In addition, workshops are offered on various relevant topics to help foster skill development. Judges have included representatives from major tech firms such as Google, as well as seed and accelerator firms like Y Combinator.

- Western University
 - The annual Hack Western event similarly provides participants with access to experts, mentors, and peers as well as cutting edge hardware. Hack Western features a number of workshops as well as dedicated learning tracks. The event is meant to be inclusive, welcoming students from all disciplines.

BADGES / CO-CURRICULAR RECORDS

This category is not so much a type of WIL as it is a way of documenting skills and experiences gained through WIL. The use of co-curricular records is not a new development; however, a growing number of postsecondary institutions have begun to offer students credit in some form for volunteer or work experience obtained outside of their regular school curriculum. *University Affairs* reported on the trend towards authenticating student learning outside the classroom as early as 2010, and the University of Toronto hosted Canada's first national co-curricular record summit in 2014. In 2013, Mozilla launched its Open Badges software to support the awarding of digital badges to verify that students have a specific skill that may not be obviously associated with their degree. The badges—digital icons that are meant to represent an earned credential—are intended to be posted in places where they will be visible to prospective employers, such as on a LinkedIn page. Ferns and Comfort (2014) assert that digital badges (which they refer to as ePortfolios) are an ideal platform for demonstrating WIL achievements.



In Canada, George Brown College's Office of Research and Innovation began offering digital badges for skills including problem solving and team building, and for finding innovative solutions to industry problems. The St Lawrence College School of Business began offering a digital badge program, based on technology from Mozilla, later in 2014.

However, a number of questions remain around the value of digital badges to employers. In a 2016 survey of 130 human resources professionals conducted by Accreditrust Technologies—a provider of technology supporting “verifiable and portable digital credentials”—found that just one-quarter of respondents had begun using digital credentials in their recruitment or hiring processes. Most considered them a “low stakes” credential, less valuable than a college or university degree, a professional certification or license, or work history on a resume (Accreditrust 2016). Elias (2015) found that 49% of respondents to a survey of hiring professionals rated “extracurricular participation” as very important or important when reviewing job candidates’ materials; 32% of respondents said that they were interested in having a means to verify extracurricular participation. 77% of respondents said that they would be likely to review a co-curricular record if it were attached to an application, and 73% said they would review one if it were brought to an interview. Respondents also rated the value of information that could be included on a co-curricular record. 55% said that the inclusion of the number of hours per activity would be very valuable or valuable; 68% rated the definition of competencies/skills as very valuable or valuable; and 50% said that a description of the validation process would be very valuable or valuable (Elias 2015).

Examples:

Concordia University: Concordia University offers a co-curricular record. The university states that the co-curricular record serves as an official record of a student’s involvement in an activity while at Concordia, as well as a demonstration of acquired skills that can help students stand out to potential employers. The Concordia website further indicates that co-curricular records may be considered in graduate school applications and in the awarding of grants and bursaries. Students are able to self-manage their co-curricular record using an online portal; however, requests to add activities to the co-curricular record must be approved by a staff, faculty, or student validator. To be approved, an activity must be connected to an on-campus opportunity but must not be an activity required for academic credit.

George Brown College: George Brown College offers Excellence in Research and Innovation badges to recognize experience earned by students outside the classroom through their involvement in research projects. The badges can be displayed on the student’s social media profiles, including Facebook or LinkedIn, and are meant to indicate to prospective employers that the student has gone beyond their classroom education to develop skills that do not necessarily appear on an academic transcript.

St Lawrence College: The St Lawrence College School of Business launched a one-year pilot of its digital badges program in early 2014. Using technology from Mozilla Backpack, a badge is meant to complement a student’s academic transcript and to serve as an online representation of a skill the student has developed. At the launch of the pilot, badges were available in the areas of Critical Thinking, Communication, Entrepreneurship, Information Management, Leadership, Networking, Teamwork, and Volunteering. Badges are based on a rubric designed by SLC students that draws from the Ontario Ministry of Training, Colleges, and Universities’ Essential Employability Skills. In 2015, SLC added new badges for its Spark Academy program and for Enactus teams around the world. Students are able to add their digital badges to the Certifications section of their LinkedIn profile page; prospective employers are then able to click through to a verification page validating the badge’s authenticity and providing more information on the evidence and criteria for the accomplishment.

University of British Columbia: In 2014, a group of librarians, faculty, and learning designers at UBC launched an initiative to implement 13 Open Badge pilot projects at the university. The group distinguishes Open Badges, which are meant to be shared openly across websites, from digital badges, which they argue are generally confined to the website on which they were issued. The group suggests that Open Badges can be used by a variety of organizations, including educational institutions and businesses, to indicate skill development for a variety of different purposes. In 2014, three UBC programs incorporated badges to varying degrees into their curricula: Video Game Law, Digital Tattoo, and Educational Technology. Under the auspices of the Digital Tattoo program—an initiative designed to encourage participants to think critically about their online presence and digital identities—students are able to earn badges for activities ranging from signing into a website to completing quizzes to creating content for the project website.

WORK-INTEGRATED LEARNING IN CANADA

BARRIERS

While WIL has become increasingly popular in recent years, there remain significant barriers that prevent WIL opportunities from being available to all students. The most commonly cited barriers reported by WIL participants and practitioners include:

- Meeting student needs
- Supply and demand
- Economic barriers
- Administrative burdens
- Managing expectations

The effects of these barriers on each relevant stakeholder group can vary significantly. This section will review key barriers to WIL participation for employers and community partners, for institutions, and for students.

BARRIERS FOR EMPLOYERS AND COMMUNITY PARTNERS

Key barriers to providing WIL opportunities affecting employers and community partners typically cluster around issues of resourcing. In many cases, employers may be reluctant to participate in WIL programs due to the perceived costs involved. These costs may include not only providing fair compensation to the student, but the considerable time and effort required to supervise and mentor students effectively. In some cases, specifically with apprenticeships, employers have expressed reluctance to invest in student employees for fear that the student will subsequently get “poached” by a competitor (Brisbois et al. 2008). Some employers have also reported concerns about being able to find suitable projects for WIL students (Jackson, Ferns, Rowbottom, & McLaren 2015).

In addition, employers may not always be well-equipped to provide the level of mentorship that a highly effective WIL experience requires. Finding quality mentors can be difficult; mentors must be capable of providing on-the-ground formative feedback to students, which requires that the mentor be intimately familiar with the objectives and aims of the WIL program and be well versed with the applicable assessment standards (CHE 2011).

These challenges affect employers of different sizes in very different ways. While smaller employers stand to benefit greatly by partnering with institutions on WIL opportunities, they are more acutely affected by the cost of providing WIL opportunities, as their limited payroll not only affects their ability to provide work placements but can also make it challenging to provide students permanent employment when their placement ends (Sattler and Peters 2012). Smaller business responding to an Australian Workforce and Productivity Agency study (2015) also reported concerns about the quality of experience they could provide. Small and medium enterprises have also reported difficulties initiating collaborations with institutions in research and co-op employment programs (Mendelsohn, Shlozberg, Hjartarson, & McGuire 2011); moreover, many organizations have reported finding institutional policies and procedures difficult to navigate (Sattler and Peters 2012).

Employers may also have specific preferences for more seasoned students that can be difficult to fulfill on the part of the institution, suggestive of a tension between workplace expectations for students-as-workers and institutional expectations for students-

as-learners (Mills, McLaughlin, & Robson 2008).

The Australian Workforce and Productivity Agency found that some employers were unfamiliar with the terms used in an academic setting to describe WIL; for example, while most employers were comfortable with language such “internship,” fewer recognized the term WIL (2015).

Sattler (2011) identified the following challenges for employers and community partners:

- **Economic and financial pressures:** The provision of WIL can add a significant financial burden to the employer. Some respondents noted that budget constraints meant that they were unable to pay students for their work, which made it difficult to recruit students who preferred paid opportunities.
- **Workload and Staffing:** Respondents noted that they found it difficult to allocate staffing resources to supervise WIL students. In addition, staff charged with supervising or mentoring WIL students needed to have a strong understanding of the program and its aims to serve in that role effectively.
- **Administrative demands:** Respondents noted that they sometimes found it difficult to manage the various procedures and processes used at competing institutions. They also felt that the administrative burden increased with WIL programs were being handled by less-experienced or more time-pressured faculty members, and reported difficulty connecting with appropriate institutional representatives. Respondents also noted that a lack of clarity around why they should hire a specific institution’s students. Sattler notes that in many cases, there was little formal support available from the institution to assist employers and community partners.
- **Supply and demand:** Some respondents noted difficulties matching the available students with their needs. In some cases the supply did not match seasonal variations in staffing needs. This challenge was compounded by short or inflexible WIL placement dates that were mandated by the institution, which did not match the ebb and flow of the business. Informants also noted that they sometimes found it difficult



to accommodate students due to physical space constraints.

- **Student quality:** Some informants said that they found it difficult to find students with the right qualifications for the work placement. In some cases, students were said to lack basic skills needed to perform their role effectively.
- **Location of the business or organization:** Some partners suggested that their organization's location was a barrier to attracting quality students, who preferred to find placements in more desirable areas or regions. In addition, the location of some business could make it difficult for students to commute if the location is not a place that is effectively connected to local transit networks.

BARRIERS TO STUDENT PARTICIPATION

Students are affected by many of the barriers faced by institutions and organizations seeking to provide WIL opportunities. The inability of employers to provide WIL opportunities due to resource constraints means that there are fewer WIL opportunities available to students.

WIL opportunities may not be as available for students in some faculties. Participation in co-op programs, for example, tends to be dominated by business and engineering faculties.

Students involved in apprenticeships have reported challenges around getting quality on-the-job training as well as balancing on-the-job training with their classroom work. Students also cite an apparent lack of communication between relevant stakeholders, as well as long waitlists for apprenticeship opportunities and a lack of adequate space at local postsecondary institutions (MacDonald-Jenkins & Cornish 2015).

Students may also be reluctant to pursue a WIL opportunity if it will incur a financial burden. In some cases, co-op fees, which may cover registration and orientation expenses, may put a WIL opportunity out of reach for some students, as well as associated costs including childcare, transportation, and accommodations (Bristow 2014). The most commonly cited reasons that students did not pursue WIL opportunities were logistical or financial, including the cost of relocation, registration fees, and

challenges associated with delaying graduation.

International students face a number of additional barriers, including a lack of knowledge about the local labour market and workplace culture, concerns about prolonging their periods of study, English language competency, concerns about employer attitudes and perceptions, and questions about visa status. Employers may expect that the process for taking on an international work study student may be longer, more involved, and more expensive than that for taking on a domestic student; moreover, they may be less willing to absorb the risk of taking on an international WIL student for fear that there is little chance the student will stay on or return as a permanent hire rather than return to their home country (Gribble 2014; Jackson and Greenwood 2015).

Students facing physical, mental, or social challenges also contend with additional barriers. Institutions must work closely with these students to determine whether or not they may disclose their specific challenge, as well as to help the student discuss their needs with prospective WIL partners. Students facing such challenges may also need additional assistance identifying and pursuing WIL opportunities that are a good fit for their abilities (Stirling et al. 2016).

Sattler and Peters (2012) identify a number of challenges reported by Ontario PSE graduates who completed WIL experiences. Among college students, only two challenges were identified by more than half of students: lack of payment (mentioned by 53% of respondents), and unexpected financial costs (51%). Time management pressures were also frequently cited as concerns, specifically challenges related to balancing WIL with family commitments (47%) and handling additional time demands (45%). Sattler and Peters ranked the challenges identified by college students by mean scores, determining that lack of payment was the most significant college WIL challenge, followed by unexpected financial costs. These were followed by balancing WIL with family and time demands. Following these challenges were a series of issues pertaining to the college's role in delivering WIL, including an inability to find an appropriate placement, a lack of support from the school, and insufficient preparation from the school.

Similarly, among university graduates who had participated in WIL experiences, only two challenges were named by more than half of respondents:

insufficient preparation from the school (50.5%), and theory and skills not being relevant (50.0%). However, these were not likely to be identified as “major” concerns. University students also frequently cited time demands. Fewer reported having financial concerns; however, financial challenges were reported to be of greater degree of concern, with 24% of university graduate respondents identifying “didn’t get paid” as a major challenge. When compared by mean score, university WIL students’ top concern was that they were not paid, followed by insufficient preparation from school, time demands, theory and skills not relevant, and not enough sharing of WIL experiences.

When asked about reasons for not choosing WIL, the top reasons cited by college students included not wanting to delay or disrupt their program, never intending to do WIL, concerns about additional costs, lack of payment for WIL, and uncertainty about what WIL would require. The top reasons cited by university students were not wanting to delay or disrupt program, never intending to do WIL, worries about additional costs, worries about finding a suitable placement, and uncertainty about what WIL would require (Sattler and Peters 2012).

BARRIERS FOR INSTITUTIONS

Implementing or expanding WIL programs can be extremely challenging at the institutional level. The literature around WIL programs has noted a number of significant barriers to wider adoption, many of which cluster around the time and resources required. Many institutions now house offices dedicated to the administration and management of WIL and other related programs. This trend is suggestive of both the importance of WIL to postsecondary education in Canada, as well as the level of effort required to ensure a program’s success.

The administrative effort required to manage WIL programs often revolves around establishing and nurturing relationships with business, government, and community partners to help address ongoing issues of supply and demand. Indeed, one of the most critical barriers to the success of WIL is the difficulty finding appropriate partners to ensure that there are WIL opportunities for all students who are searching for one. As WIL proliferates into a growing number of programs, this will become all the more critical. Relatedly, more effort will be required to work with WIL partners beyond the institution to

ensure that they are provided with the information and skills they need to deliver WIL opportunities effectively. Additionally, institutional stakeholders—including administrators and faculty members—will need to ensure that they are able to respond to shifts in various contexts in which WIL is delivered. This means being responsive not only to short-term trends, but also working with external partners to anticipate larger-scale shifts. Institutions must also be ready, willing, and able to assist students who require adequate support before, during, and after their WIL experiences to ensure that they realize maximum value from their opportunities.

Institutions must also recognize barriers to WIL adoption at the faculty level. According to Peters (2012), faculty have identified challenges including difficulties managing WIL with large class sizes and with academic workloads. One-fifth of respondents noted that a lack of recognition for WIL activities in promotion decisions was also a key challenge. Respondents in Peters’ study also noted that they rarely engaged in activities that required direct interaction with business, government, or community partners, making it difficult to effectively integrate classroom work with experiential training.

WIL also raises a number of issues in terms of assessment. As Ferns and Zegwaard (2014) note, effective assessment of WIL has proven to be a challenging and contentious area, given that WIL experiences can be highly variable, unpredictable, and subject to social factors over and beyond traditional classroom learning. Moreover, WIL facilitators may lack a thorough understanding of the goals, objectives, and theoretical models of most importance to their institutional and faculty counterparts. Often, students participating in WIL help define learning outcomes, making it difficult to institute a generalizable approach to assessment. Traditional methodologies may be insufficient to the task of assessing WIL activities, and new approaches—designed in collaboration between all relevant stakeholders—will be required.

An additional challenge clusters around measuring the success or failure of WIL initiatives. The high level of variance between programs, as well as a lack of a consistent terminology, makes it difficult to provide a meaningful comparison across all types of WIL that are available to students. For instance, none of the data sources examined in this study provide a complete national picture of WIL participation across all Canadian institutions. Additionally, it is difficult to find data that can clearly point to the educational



impact of WIL. Studies are, perhaps by necessity, focused on specific WIL implementations and it can be difficult to account for variations between programs and their implementations. There are many variables at play and it may be practically impossible to control for any specific element that can then be adopted as a best practice.

Sattler (2011) lists a number of institutional challenges to the implementation of WIL. These include

- **Administrative responsibilities:** There is a significant administrative burden involved with getting a WIL program off the ground as well as the ongoing time commitment required for managing the program. Moreover, institutions must carefully manage risk and compliance obligations in a changing regulatory environment.
- **Supply and demand:** Institutions reported difficulty balancing the enrolment numbers with the number of WIL opportunities available. In addition, they also contended with physical space limits, union regulations, and scarce financial resources on the part of industry and community partners. These issues were sometimes exacerbated by the fact that institutions found themselves competing with other colleges, universities, and polytechnics for placement spots with organizations. Finally, finding a good fit between an employer and student was often challenging, especially for international students and students with special needs.
- **Managing expectations:** Institutional informants reported a need for greater clarity among all partners as to the purpose of the program in order to manage expectations, avoid scope creep, and ensure the goals of each partner are being addressed. Sattler found that some employers circumvented their own obligations, while students did not always accept their own responsibilities in the WIL relationship.
- **Institutional biases and lack of institutional supports:** Some university respondents reported a bias against WIL programs. Other informants reported biases toward or against specific types of WIL programs. For instance, some colleges may be biased toward vocational forms of work and against service learning.
- **Developing and implementing WIL curriculum:** Respondents reported challenges around content and curriculum development, including issues around how programs are structured and managed within the academic institution and difficulty achieving consistency in defining remuneration, especially with co-ops.
- **Need for faculty buy-in:** Faculty engagement is critical to the successful implementation of WIL programs; however, work-study sequences do not always neatly align with faculty teaching schedules. In addition, respondents said that there is the perception that WIL will increase faculty workloads without providing sufficient compensation in the form of compensation, promotion, or tenure decisions for university faculty who do implement WIL.
- **Changing workplaces:** Rapid changes to the workplace can make it difficult to provide meaningful WIL experiences. It can seem as though institutions are faced with preparing students for jobs that do not yet exist. Workplaces are also by nature more capable of adapting to changing environments, and institutions may struggle to respond in kind.



WORK-INTEGRATED LEARNING IN CANADA

BEST PRACTICES

As Billett (2015) has elegantly argued, “Just providing students with or engaging them in workplace experiences alone is insufficient to develop the kinds of capacities needed for them to achieve the required educational goals. Instead, it is necessary to augment these experiences for students in ways that enrich them, promote their applicability and strengthen their outcomes for students as learners” (p. 136). Research related to the design, implementation and delivery of WIL point to a number of ways in which WIL experiences can be augmented.¹

¹ While beyond the scope of this study, a resource that may be useful to the BHER is the WIL Leadership Framework developed by the Australian Collaborative Education Network. The framework outlines the capabilities employed by WIL leaders as well as activities and approaches that WIL leaders can use to enact leadership. The framework can be found here: <http://acen.edu.au/WILLeadership/index.html>.

DESIGN THE EXPERIENCE WITH OUTCOMES IN MIND

WIL programs and experiences should be designed with the desired end state in mind. Successful WIL initiatives must be deliberately constructed from a foundation of clearly articulated objectives. As Stirling et al. (2016) suggest, the first step in building any WIL opportunity should focus on defining desired outcomes, the means of assessment, and the learning plan. Moreover, the specific form of WIL as well as its implementation should be directed by the objectives of the program.

South Africa's Council on Higher Education (2011) recommends that institutions participating in WIL curriculum planning engage with

- the nature and current state of knowledge in the discipline
- the nature and current state of professional practice
- philosophies of education, theories of teaching and learning, and educational research findings
- the role and forms of assessment and feedback
- students' characteristics and learning needs, interests, and abilities
- the practical, ideological, and policy context of the academic department, institution, and higher education system
- the practical, ideological, and policy context of the profession

These considerations “should inform a scholarly approach to curriculum development, which in the case of WIL, requires university teachers to engage with disciplinary knowledge, educational knowledge, and professional knowledge” (CHE 2011); they should also underpin the definition of clearly articulated, relevant, and meaningful outcomes that can be agreed upon by the various stakeholders involved in the curriculum design. Jones et al. suggest that WIL measures should focus on student capabilities rather than simple outcomes. They argue that capabilities are “about the way we act and the way we are—the abilities to do and to be.” Meanwhile, Martin and Hughes (2009) suggest that WIL programming focus on the following nine

graduate competencies:

1. Communication skills
2. Self-confidence
3. Customer relationship management
4. Enthusiastic participation
5. Industry and business knowledge
6. Self-sufficiency
7. Personal organization
8. Professional networks
9. Professional ethics

Ultimately, the goals of any WIL initiative must be determined by the aims of the specific program and developed in collaboration with all stakeholders. The outcomes of the WIL program should state specifically what students will be expected to value, know, or be able to do at the end of their experience. Program designers should identify key information, ideas, or perspectives that the students will be expected to acquire, as well as the types of projects that the student will be expected to manage upon completion.

These expectations should, in turn, inform the development of targeted learning assessments. According to Connaughton et al. (2014), learning assessments “should be linked to educational learning outcomes and experiences with industry to determine discipline-specific competencies.” The process of defining these outcomes can and should involve all stakeholders, including students, workplace supervisors, faculty, and employer organizations, with the end goal of determining whether desired learning outcomes have been achieved. Organizations should adopt global rating scales that reflect overall performance, and incorporate assessment throughout the WIL experience to provide students opportunities to reflect on feedback and adapt as necessary (Stirling et al. 2016).

The learning plan, too, emerges from clearly defined learning outcomes. The plan must consider the specific framework of the WIL program being offered, and its development should involve the student and the workplace supervisor as key stakeholders. Stirling et al. (2016) identify seven approaches to developing a learning plan:



- **Work required:** students work through agreed upon set of tasks
 - **Reflective assessment:** Students observe day-to-day practice in the workplace and reflect on decisions made
 - **Work/Learning contract:** Students negotiate a set of responsibilities with their supervisor to be achieved in a defined time frame
 - **Project work approach:** students are responsible for completing a specific project within a set time frame, concluding with a written report
 - **Critical incident analysis:** Students record an incident in which they were involved and discuss their response with the learning guide and evaluate how their actions could have been more effective
 - **Case study/history:** Students provide detailed study of an individual, feature, or event in the workplace, with a plan for change or improvement
 - **Direct observation:** students are observed over time and a record is maintained of the observer's estimations of their performance in relation to specific outcomes
- journals; commentary on news items
 - **Problem solving:** case studies and problem scenarios; research and information finding
 - **Performing procedures and demonstrating techniques:** demonstrations; role-play; video diaries; poster presentations; lab reports; report on observation of a real or simulated professional practice
 - **Designing, creating, performing:** portfolios; simulated performance; presentations
 - **Managing and developing oneself:** journals and blogs; portfolios; learning contracts
 - **Accessing and managing information:** annotated bibliographies; research reports; problem-solving reports

Ultimately, regardless of the approach, the learning plan should identify clear, specific outcomes; list specific tasks that will be used to achieve the outcome; determine the method and timeframe for assessment; and identify any monitoring and assessment methods that will be used. These assessment methods should be appropriate to the desired outcome. CHE (2011) identifies a number of assessment methods suitable for WIL programs depending on the intended goal:

- **Demonstrating knowledge and understanding:** written reports, similar to those that would be produced in the workplace; comments or feedback on previously written reports; creation of a glossary of terms; written response to a client inquiry.
- **Thinking critically and making judgments:** written reports; journal entries; blogs; case studies; briefing papers for specific meetings; articles for professional

Additionally, assessment methods should fit with the form of WIL being undertaken. It may be valuable to involve a workplace partner who can serve as a moderator for the overall assessment plan. Classroom leaders should strive to simulate the workplace environment by, for instance, including technical reports in place of some academic essays. In problem-based learning environments, students should, with help from workplace moderators, be capable of assessing their own skill development as well as the skills of their peers. Finally, students who are learning in a workplace may be assessed with learning diaries, portfolios, progress files, and other methods that document the work being performed (CHE 2011).

Note, too, that the ideal end state and desired learning outcomes will also influence or direct the creation of any metrics or key performance indicators (KPIs) that will be used to evaluate the program as a whole. These indicators should be based on the desired outcomes and not treated as goals in and of themselves. To date, many studies have focused narrowly on performance measures such as employment outcomes rather than on whether programs are actually achieving their stated educational goals. While such data is obviously important, these metrics are not, strictly speaking, measures of whether a program is achieving its learning outcomes (Stirling et al. 2016).



UNDERSTAND FACULTY NEEDS

Faculty have been found to be generally supportive of WIL, especially at the college level. A 2012 study of faculty in Ontario found that 55.1% of college faculty and 43.8% of university faculty felt that the level of WIL in postsecondary institutions should be increased, though a significant proportion—19.4% of college and 26.9% of university faculty—said they were unsure of whether the use of WIL should increase, decrease, or remain the same. 95% of college and 83.5% of university faculty agreed or strongly agreed that WIL is valuable, with most suggesting that students are the primary beneficiaries (Peters 2012).

However, faculty did identify a number of key challenges. The most commonly named challenges were ensuring quality placements, finding enough placements for students, and faculty workload. Over half of college and university faculty said that “managing WIL with large class sizes” and “balancing WIL with academic workloads” were a challenge. Approximately one-fifth of faculty cited lack of institutional service recognition for WIL activities or lack of recognition for WIL activities in promotion decisions as key challenges (Peters 2012). Faculty also reported that they infrequently engaged in activities that required a lot of direct interaction with business, government, or community members, instead favouring activities such as using business examples in class and providing career assistance. Integration of student learning and real-world work experience was more common among college faculty (Peters 2012).

Peters (2012) recommends that postsecondary institutions improve faculty awareness of the benefits and purpose of WIL. Institutions must also address the concern expressed by some faculty that WIL favours the production of workers rather than providing students with a broad, theoretical education. Finally, Peters recommends that institutions provide financial and administrative resources and recognition for WIL-related work, as well as playing a role in recruiting and building relationships with host sites.

WORK WITH EMPLOYERS

In order to foster productive partnerships with industry and community organizations, it is important that institutional stakeholders clearly understand the value of WIL for all parties involved. Institutions should work closely with professional

organizations to ensure that the program is meeting the needs of a given industry or community. Ideally, faculty in relevant programs will be willing and able to establish partnerships with their counterparts beyond the institution by, for instance, joining professional societies, attending relevant professional conferences, and inviting professionals into the classroom to speak to students or even assess student work and provide formative feedback. Industry and community representatives may also have valuable feedback on the design of problems or projects that students will tackle in their programs, and can offer suggestions for realistic workplace problems, provide authentic materials from the world of practice, or help introduce a problem or project (CHE 2012).

Moreover, external partners can help institutions determine any requirements that students must fulfill prior to their WIL experience. According to Martin, Rees, and Peters (2011), some institutions have developed documentation that clearly identifies what is expected of students prior to their placement. In some cases these may be administrative tasks, such as obtaining a criminal record check or signing a disclosure statement, confidentiality statement, or consent form, that are required before the student is able to work in a specific setting. In other cases, the pre-placement checklist may identify basic abilities that a student will be expected to have before entering the workplace, whether they are “soft” or technical skills (Martin, Rees, and Peters 2011).

However, initiating partnerships with industry or community stakeholders requires preparation as well as adequate allocation of resources, not just for establishing a relationship but for the ongoing management of the partnership (CHE 2012). Institutions may wish to build partnership development programs in order to enhance the strength of existing WIL programs as well as to identify and capitalize on further opportunities (Martin, Rees, and Peters 2011). Such a role would need to establish strong ties with industry partners, maintain up-to-date information about past and potential partners, and ensure clear communication and shared understanding of benefits, goals, and desired outcomes of WIL programs between all stakeholders.

To this end, it is critical that institutional stakeholders are mindful of employers and other partners’ goals in offering WIL programs, and recognize that educational learning outcomes do not always map neatly against commercial objectives (Martin, Rees,

and Peters 2011). Various studies have shown that employers often view WIL as a means to pre-screen students for permanent positions (Braunstein and Stull 2001; Callanan and Benzing 2004; CLMS 2002; Sattler and Peters, 2012), improve employee retention (2002), create positive relationships with higher education (Braunstein and Stull 2001), and enable the achievement of products that could not otherwise have been completed (Sattler and Peters, 2012). Some employers have also indicated that WIL programs serve as a marketing and recruiting tool as students return to campus and discuss the firm with their peers. Callanan and Benzing have examined the recruitment savings realized by employers as a result of their participation in WIL. Weisz (2001) estimated that a co-op program with 800 students saves employers between \$500,000 and \$1.37 M annually. Sattler and Peters found that most employers cited “to develop industry/profession workforce skills” (81.7%) as a reason for offering WIL, followed by “to ‘give back’ to the community” (71.3%), “to pre-screen potential new hires” (70.2%), and “to bring in specific skills/talent” (66.2%).

Motivations to participate in WIL vary depending on the employer’s size. The smallest employers (2–9 employees) in Sattler and Peters’ survey were much more likely to choose giving back as their top reason for participating, and were less likely to cite a desire to bring in a specific skill or talent. Businesses with 10–19 employees were more likely to cite enhancing company reputation and less likely to cite a need to fill a skill gap. Firms with 20–49 employees cited pre-screening of new hires as being the most important factor, and were less likely than the smallest firms to cite increasing productivity. Larger firms (50+ employees) were much more likely to cite managing short-term workflow pressures as their top motivator.

Sattler and Peters (2012) list the following strategies as means to increase employer investment in WIL:

- Provide more information to prospective WIL employers about the full range of WIL options available, the specific skill sets brought by students within WIL programs, and criteria for “suitable” work
- Adopt standardized terminology about WIL programs to ensure that employers understand what is involved when they are asked to participate
- Increase flexibility for employers and adjust the length and timing of WIL opportunities to

better align WIL programs with the business cycle

- Simplify processes for employers to recruit and select WIL students by providing assistance with paperwork or administrative requirements
- Provide more training for employers around student supervision and assessment
- Ensure regular and open communication between the institution and the employer during and after the work placement
- Develop coordinated provincial approaches to employer involvement in WIL, such as standardized procedures across institutions and a centralized employer database

PROVIDE A CONSTRUCTIVE LEARNING SPACE

Stirling et al. (2016) emphasise the importance of providing a constructive learning space for WIL students. The learning space includes not just the physical environment in which the student will study, but also the social environment. According to Stirling et al. (2016), factors contributing to a positive learning space include

- Development of expertise (repeated practice related to the goal)
- Action and reflection (active expression, reflection of knowledge, and learning)
- Feeling and thinking (connecting emotions to knowledge; learning what is most interesting to the individual)
- Learners’ ability to take charge of their own learning (allow the learner to take direction and responsibility for their own learning)
- Inside out learning: linking educational experiences to the learner’s interests
- Communication: conversation promotes ongoing reflection

Providing formative assessment may also help facilitate a constructive learning space. Formative assessment, also called “assessment for learning,” provides students with the opportunity to receive feedback on an early attempt at putting a skill

into practice. Formative assessment may best be understood as being part of a conversation between the student and an instructor or practitioner, who provides feedback that the student can incorporate into a later attempt. Additionally, formative assessment may be used to prepare students for summative assessment. Formative assessments should be delivered to students as soon as possible to ensure that the student fully understands the feedback being given (CHE 2011).

Quality mentorship can help facilitate the provision of valuable formative assessments. Mentors work with students to identify areas for student learning, help plan learning activities, and provide key questions and constructive feedback to better understand student learning and progress. The mentor also serves as a role model for students. Mentors may include peer advisors and coaches (Stirling et al. 2016), as well as on-campus staff who provide guidance, encouragement, positive reinforcement, constructive criticism, and feedback (Martin, Rees, and Peters 2011). Because it can often be difficult for institutions to provide on-the-ground formative feedback to students engaged in an external WIL experience, it is critical that on-site mentors understand the objectives and aims of the WIL opportunity and be familiar with any relevant assessment standards (CHE 2011).

One challenge with providing a constructive learning space is understanding the diverse needs of learners. WIL programs must consider the needs of students facing physical, mental, or social challenges. It is incumbent upon the institution to understand these needs and consider factors such as whether the student will want to disclose their challenge, how the student can productively discuss their needs with prospective WIL partners, the appropriate time for disclosure of any specific requirements or accommodations, and whether the WIL opportunity is a good fit for the student (Stirling et al. 2016).

The design of the WIL program must also ensure that necessary steps are taken to identify and manage any risks involved. These may include risks to the health and wellbeing of the student, which may vary significantly from any risks associated with classroom learning. Many institutions, as a best practice, engage with their legal teams to develop effective risk management techniques, which may include workplace health and safety issues, intellectual property and confidentiality issues, student misconduct, misalignment of policies

between the workplace and the institution, issues with wages or compensation, or workplace and sexual harassment. International WIL programs will require special care and consideration to identify and ameliorate risk; all parties involved must ensure that they understand any insurance obligations, visa arrangements, and other local legislation or requirements that may affect the placement (Stirling et al. 2016; Martin, Rees, and Peters 2011). More risk-averse industries or sector professions, such as health professions, should take care to ensure that students understand what is expected of them in terms of ethics, privacy, and confidentiality (Martin, Rees, & Peters 2011).

FACILITATE REFLECTION

Reflection, defined as “understanding one’s own philosophy and re-evaluating it in light of experiences” (Stirling et al. 2016), has frequently been identified as being critical to the success of WIL. Reflection is widely recognized to deepen students’ knowledge and understanding, enhance their personal and professional growth, and contribute to an awareness of the origins and importance of learning experiences, among other benefits. The learning environment should provide students with ample opportunities to engage in new, unfamiliar, or complex experiences and foster learning by providing consistent and appropriate feedback as well as opportunities for collaboration and reflection. These are understood by Stirling et al. to be antecedents to productive reflection, contributing toward the goal of developing learning through thoughtful analysis of a professional experience.

Martin and Hughes (2009) emphasize the importance of reflection taking place before, during, and after the work experience. They cite Gibbs’ (1988) model of reflection, which includes six stages intended to foster self-knowledge and the development of student skills:

1. **Description of the event:** the student describes what they are reflecting on, including what they were doing, what other people were doing, the context of the event, what happened, what role they played, what role others played, and the result;
2. **Feelings and thoughts:** the student recalls and explores their thoughts and feelings during an event, including how they felt when the event started, what they thought during

the event, how they think others felt at the time, and how they felt about the outcome;

3. **Evaluation:** the student evaluates or makes a judgment about what has happened, including what they think was good or bad about the experience
4. **Analysis:** the student breaks the event down into its component parts, possibly asking detailed questions about their answers to the previous stage. The student can then explore the component parts individually.
5. **Conclusion and synthesis:** the student, having explored the issue from different angles, now has more information on which to judge the event and synthesize this information
6. **Formulation of an action plan:** the student thinks about encountering the event or a similar event again in the future and reflects on what they would do the same or differently

Stirling et al. advocate for the use of Ash and Clayton's (2009) DEAL model of critical reflection: Description, Examination, and Articulation of Learning. Reflection exercises may include pre- and post-experience surveys, structured dialogues, writing activities, or acting and visual arts activities. However, care must be taken to avoid "reflection fatigue." Other challenges associated with reflection include a lack of time in fast-paced WIL environments as well as a disconnect between experiences as they occur in the WIL environment and the time of reflection on those experiences (Stirling et al. 2016). Martin and Hughes suggest that online platforms for blogging or social communication could be used to provide students with the means to reflect on their experiences quickly after the experience has occurred (2009). Some studies have found that students do not immediately see the value or purpose of reflective activities; other feedback has suggested that students do not always realize that an apparently negative experience may provide a fruitful opportunity to learn. These examples point to the importance of quality mentorship and supervision in the reflection process (Martin and Hughes 2009).

Reflection often facilitates self-knowledge and may include consideration of students' own career trajectories. Leong (2012) argues that WIL

programs should include "career education," defined as "the development of knowledge, skills, and attitudes through a planned program of learning experiences in education and training settings which will assist students to make informed decisions about their study and/or work options and enable effective participation in working life." Career education as Leong understands it helps students understand themselves, providing each participant with a stronger sense of his or her strengths, abilities, skills and knowledge, as well as developing participants' understanding of the range of career opportunities available to them and how to make thoughtful choices about their career plans. This "career development learning" may also include employability skills and should, Leong says, be incorporated into the early stages of a WIL framework, through methods including personal reflection journals or presentations on career development and employability. As Leong notes, "employability is not just about getting a job. It is about developing attributes, techniques, and experience to enable a student to get a job and to progress within a chosen career with a long term and sustainability viewpoint. It is about learning and the emphasis is less on 'employ' and more on 'ability'" (2012).

INTEGRATE THEORY AND PRACTICE

Stirling et al. identify the integration of theory and practice as the greatest challenge to the success of WIL programs. The integration must operate in both directions: that is, the student should benefit from the perspectives and specific knowledge of practitioners in the workplace and from materials taught in the classroom. In addition, integration should take place in each phase of WIL—before, during, and after the experience—and be incorporated into learning plans, assessments, and outcomes. The workplace should be seen as providing opportunities to learn and develop new areas of expertise rather than simply a place to put classroom learning into practice.

Martin and Hughes argue that "WIL programs should formally state that they require integration of knowledge as an explicit learning objective" (2009). This requires that students be prepared with basic content knowledge as well as prior exposure to the profession and critical thinking skills. Students must also recognize the relevance of their education prior to their WIL experience; this requires that prior activities be expressly linked to integration (Martin

and Hughes 2009).

South Africa's Council on Higher Education (CHE) posits that any given profession consists of three different fields: the academic, which provides the scientific basis for the profession; the educational field, which involves the curation of knowledge from the academic field by teachers and faculty; and the professional field, which involves professional practice. These fields all participate in a shared system of knowledge, albeit each with its own perspective and areas of emphasis. By drawing connections between the three fields, programs better prepare students for professional practice (CHE 2011).

This is rarely a simple task. Forms of knowledge organization and management vary significantly between academic programs and the workplace. A great deal of workplace knowledge is not codified and may be difficult to access or translate into an academic context. Moreover, efforts to "recontextualize" knowledge from the workplace to the classroom may compromise the workplace knowledge by rendering it "inauthentic" (CHE 2011).

To mitigate these risks, integration should be treated as a shared responsibility, deliberately incorporated into the WIL opportunity by all stakeholders. Faculty and staff can build integration into their programs by incorporating it into learning outcomes and assessment methods, while students should be encouraged to integrate what they have learned in their WIL experiences into the next phase of their education, whether in a classroom or not. Workplace supervisors should discuss the theoretical aspects of their work with students and help draw connections between theory and practice, as well as translating conceptual material into practical language with examples.

According to CHE (2011), strategies to facilitate the integration of theoretical knowledge and practice may include

- designing learning activities that require students to integrate disciplinary and workplace relevant skills and knowledge
- incorporating professional practice as the organizer for theoretical learning, while acknowledging and reflecting upon the fact that some workplace practices may be at odds with theoretical knowledge
- placing students in authentic professional

contexts where they may participate in meaningful activities that are designed with enhanced and integrative learning in mind

CHE also offers recommendations on best practices for ensuring integration depending on the WIL modality being employed. In the case of work-directed theoretical learning, CHE recommends that the delivery of academic content include active forms of learning such as demonstrations, tutorials, and experiential learning opportunities. These can be used in concert with more traditional teaching methods such as lectures.

In "pure" problem-based learning, facilitators should not dictate the curriculum; rather, students should self-direct their learning around specific problems. In problem-based learning, facilitators help students foster problem-solving skills and promote autonomous, active learning. Ultimately, though, the students are responsible for their own learning, including the identification of gaps in their own understanding, experience, or skill set. In project-based learning environments, students are relatively autonomous; however, CHE recommends that the level of autonomy and responsibility accorded to students be carefully weighed against the student's level and experience. The student's prior experience will also influence the level of workplace supervision that may be required.

CHE recommends that students be exposed to problem- or project-based learning prior to participating in workplace learning to ensure that they are adequately prepared for the challenges of the placement. Students must have a thorough understanding of workplace expectations, and of the institution's expectations in terms of documenting their experience. Students must also be provided with information on how to respond to any issues that may affect their ability to meet the expectations placed upon them.

MAINTAIN, EVALUATE, AND OPTIMIZE

To ensure the ongoing success of WIL programs, frequent evaluation against a carefully selected evaluation model that considers these desired outcomes is recommended. Such evaluation will provide institutions with a better understanding of student, institution, industry, and community needs, as well as point to ways to improve implementation and the degree to which a program is achieving its outcomes.

Per CHE (2011), the ongoing administration of WIL programs may fall under the auspices of a dedicated office whose mandate includes the following objectives:

- Develop WIL policies and guidelines
- Set up structures to support WIL practices
- Liaise, communicate, and build relationships with workplace partners
- Monitor WIL implementations
- Analyze and interpret data on the implementation of WIL
- Disseminate findings on WIL practices to relevant structures
- Maintain WIL databases
- Review and evaluate WIL initiatives

In the cases of project-based learning and workplace learning, CHE (2011) suggests that partnerships between the institution and industry partners be formalized through memorandums of understanding that clarify the roles and responsibilities of all parties.

Academic departments, too, must be involved in the ongoing “care and feeding” of the WIL programs. Faculty and administrators will, of course, need to be fully aware of the structures in place to support WIL and of any considerations affecting issues such as course scheduling, allocation of course credits, assessment methods, and program aims and objectives. Implementing WIL in the context of classroom-based instruction requires that faculty be provided with the resources needed to incorporate WIL into any existing learning plans; faculty may also benefit from additional institutional support when it comes to establishing connections with partnering professional or community organizations (CHE 2011).

In some cases, students may benefit from selecting their own placement (Martin, Rees, and Edwards 2011). In general, this will occur when the student has identified an employer that they believe can deliver a specific competency or capability, or because the student has identified the workplace as being desirable for their future employment prospects. Martin, Rees, and Edwards (2011) note

that by involving students in the process of selecting a workplace partner can help develop skills as well, such as communication and time management. However, the institution and department should be involved to ensure that the prospective employer is suitable for the learning goals of the program and that the organization fully understands what will be required of them.



WORK-INTEGRATED LEARNING IN CANADA

EXTENT OF CURRENT WIL INVOLVEMENT

Assessing progress towards the BHER's goal of 100% PSE student participation in WIL requires a baseline understanding of the current level of WIL participation among Canadian PSE students. To address this question, existing data sources that can inform our understanding of how many Canadian PSE students¹ currently participate in WIL before they graduate were gathered. In total, seven sources were found.

¹ Restricted to university undergraduate students and college and polytechnic certificate, diploma, and degree students.

Table 1 provides a summary of the sources and their key findings, with more detailed information provided following the discussion.

Table 1. Summary of Data Sources Containing Information about WIL Participation

	Brief Description	Key Results
National Graduates Survey (NGS)	Statistics Canada survey of graduates from Canadian public PSE institutions two and five years post-graduation ¹ . Most recent data available is 2013 (Class of 2010).	<ul style="list-style-type: none"> • 22% completed a co-op program (college) • 12% completed a co-op program (university)
National Survey of Student Engagement (NSSE) – Seniors	Survey of first-year and senior students at universities and colleges in the U.S. and Canada. In Canada it is primarily universities that participate. Most recent data available is 2015.	<ul style="list-style-type: none"> • 47% participated in an internship, co-op, field experience, student teaching, or clinical placement • 15% planned to do so prior to graduation • 45% participated in service-learning
Graduating Student Survey	CUSC survey of undergraduate university students in their last year of study. Most recent data available is 2015.	<ul style="list-style-type: none"> • 55% participated in WIL • 16% in practicums • 16% in work experience • 15% in service learning • 14% in co-op • 9% in internship (unpaid) • 7% in internship (paid)
Polytechnics Canada Data	Administrative data collected annually from member institutions regarding the percentage of each institution's programs that contain WIL by credential type and type of WIL. Most recent applied research and apprenticeship data is 2015/2016, all other data is 2014/2015.	<ul style="list-style-type: none"> • 67% of degree, diploma and graduate certificate programs include WIL • 82% of degree programs include WIL • 64% of diploma programs include WIL • 63% of graduate certificates include WIL • 10,518 students involved in applied research • 45,873 apprentices
Baccalaureate Graduate Survey	B.C. government survey of graduates of all public degree granting institutions in B.C. two and five years post-graduation. Most recent data available is 2014 (Class of 2012).	<ul style="list-style-type: none"> • 45% participated in paid or unpaid work experience as part of their program
Graduate Outcomes Survey	MPHEC survey of Maritime university graduates two and six years post-graduation. Most recent data available is 2014 (Class of 2012).	<ul style="list-style-type: none"> • 28% completed a work placement • Of this 28%, 55% completed a co-op program

<p>Graduating Student Survey on Learning and Work</p>	<p>A one-time HEQCO funded survey of WIL participation among Ontario college and university graduating students. Data is from 2012.</p>	<p>College:</p> <ul style="list-style-type: none"> • 68% participated in WIL • 29% field placement • 19% practicum/clinical placement • 19% co-op • 15% internship • 7% applied research projects • 4% service learning <p>University</p> <ul style="list-style-type: none"> • 48% participated in WIL • 15% practicum or clinical placement • 13% co-op • 11% internship • 8% field placement • 7% applied research project • 6% service learning
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Perhaps not surprisingly, none of the data sources examined provide a national picture of participation in the full spectrum of WIL activities across Canadian universities, colleges, and polytechnics. They do, however, shed light on the approximate number of Canadian postsecondary students who participate in WIL. Where we find similarities in results across data sources, we have more confidence in our ability to produce rough estimates of current WIL involvement.

For university students, there are six data sources available that provide information about WIL involvement. Two of these sources use relatively narrow definitions of WIL, with one only including co-op (NGS) and the other only including work placements (MPHEC Graduate Outcomes Survey). A third source, while focused on baccalaureate graduates, combines college and university data and does not provide university-specific findings (BC Baccalaureate Graduate Survey). The two largest studies with the most comprehensive definitions of WIL ranged from 48% WIL participation (HEQCO Graduating Student Survey on Learning and Work) to 55% (CUSC Graduating Student Survey). These findings suggest that approximately half of university students participate in WIL. There is considerably less information available for college and polytechnic students. Based on the findings of the 2012 HEQCO Graduating Student Survey on Learning and Work and the data available from Polytechnics Canada, we can make a very rough estimate that 65% to 70% of college and polytechnic students participate in WIL during the course of their program. Both the college and university figures must be considered very rough estimates made based on the limited information currently available.

Given the disparate and limited information currently available, an opportunity exists to coordinate a more consistent national approach to data collection regarding WIL participation. Based on the data scan, there appear to be two main options for data collection: graduate surveys and administrative data.

In searching for data on the extent of WIL participation in Canadian PSE, the most common source was graduate surveys. A number of national and provincial graduate surveys include a question or questions relating to WIL involvement. The questions asked, however, vary by survey and unfortunately not all graduate surveys include such a question (the Alberta Graduate Outcomes Survey, Saskatchewan Graduates Survey, and Ontario College Graduate Satisfaction Survey, for example, do not ask about WIL participation).

Among graduate surveys, two general types exist: surveys of students in their graduating year and surveys of students post-graduation. Surveys of students in their graduating year have the benefit of obtaining information from students while their experiences are fresh, but some students who will participate in WIL before graduation may not have done so at the time of the survey. In response to this shortcoming, these surveys generally rely on a response option where students can indicate that they have not yet participated in WIL but expect to prior to graduation. Post-graduation surveys, on the other hand, have the benefit that the

student's studies are completed; but recall can become an issue in these instances. Recall of WIL participation two years after graduation is less of a concern for more intensive WIL activities such as co-ops, internships, and field placements; but for less intensive forms of WIL, such as service learning and applied research projects, poor recall could bias the results.

Perhaps the greatest opportunity to obtain a national, cross-sector understanding of WIL participation from a graduate survey lies with the Statistics Canada National Graduates Survey (NGS). Conducted every five years, the NGS surveys graduates from public postsecondary institutions, including colleges, universities, and polytechnics two years post-graduation.¹ Currently, the NGS only asks respondents whether their program was a co-op program. This question would need to be changed or an additional question added to make this survey truly useful for the BHER's purposes. The likelihood of influencing Statistics Canada to add a survey question regarding WIL experiences to the National Graduates Survey, however, is entirely unknown.

The second option for collecting national data on WIL participation is to rely on administrative data. Only one of the data sources examined relied on administrative records: the Polytechnics Canada data. Administrative data has the appeal of being able to apply consistent definitions of various WIL activities without relying on students' interpretations of how to categorize their WIL experiences, and of not being subject to recall or non-response bias. However, given that the most readily available data would be on the proportion of *programs* that contain WIL, additional work would need to be done to translate these figures into an accurate assessment of the proportion of *students* who participate in WIL. Further, a challenge with relying on administrative data is that it is unlikely that all institutions track all WIL activities that occur within their institution (for example, service learning or applied research projects may happen within a course without any central record at the institution, and some types of WIL are optional within a program, making it difficult to assess how many students took up the opportunity). Institutions also tend to use different terminology to refer to their WIL activities, meaning that considerable foundational work would need to be done to ensure that all participating institutions were documenting their WIL experiences in the same way.

¹ The most recent NGS, however, surveyed students three years post-graduation. While information about WIL experiences during an individual's program should not be affected by this change, it raises some concerns about the methodological consistency of this survey.

SUMMARY OF DATA SOURCES

NATIONAL GRADUATES SURVEY

Description: The National Graduates Survey (NGS), conducted by Statistics Canada, is directed at graduates from Canadian public postsecondary education institutions (universities, colleges, trade schools) who graduated or completed the requirements for degrees, diplomas or certificates during the reference school year. Since 1978 the NGS has been tracking graduate outcomes two and five years post-graduation. However, the most recent NGS tracked outcomes three year post-graduation.

Collected By: Statistics Canada

Data Source: Student survey

Institution Types: Colleges, Universities, Polytechnics and Trade Schools

Participating Institutions: All public postsecondary institutions²

Response rate: 49%

Types of WIL Included: Co-op only

Frequency of Data Collection: Every five years

Most recent year available: 2013 (Class of 2010)

Publicly Available: Yes

Key Results:

College

- 22% completed a co-op program

University

- 12% completed a co-op program

URL: <http://www.statcan.gc.ca/pub/81-595-m/2014101/section03-eng.htm#n8>

² A complete list of institutions included in the sample does not seem to be available so it is assumed that all are included.

Question Wording:

Q. Was your [certificate/diploma/degree] program a co-op program?

1: Yes; 2: No; 7: DK; 8: RF

NATIONAL SURVEY OF STUDENT ENGAGEMENT

Description: The National Survey of Student Engagement (NSSE) is targeted to first-year and senior students at universities and colleges in the U.S. and Canada. The survey has been conducted since 2000.

Collected By: Indiana University School of Education Center for Postsecondary Research

Data Source: Student survey

Institution Types: Universities and 1 college

Participating Institutions: Varies by year, 81 in last 3 years

Response rate: 44%

Types of WIL Included: Internship, co-op, field experience, student teaching, clinical placement, and service learning

Frequency of Data Collection: Annual

Most recent year available: 2015

Publicly Available: Yes

Key Results:

- 47% had participated or were currently participating in an internship, co-op, field experience, student teaching, or clinical placement
- Additional 15% planned to do so prior to graduation
- 45% had at least one course that included a community-based project (service-learning)

URL: http://bl-educ-cprtest.ads.iu.edu/SAS/rb_nsse.html

Question Wording:

Q. Which of the following have you done or do you plan to do before you graduate?

1: Participate in an internship, co-op, field experience, student teaching, or clinical placement

Q. About how many of your courses at this institution have included a community-based project (service-learning)?

- 14% in co-op
- 9% in internship (unpaid)
- 7% in internship (paid)

URL: http://www.cusc-ccreu.ca/CUSC_2015_Graduating_Master%20Report_English.pdf

Question Wording:

Q. As part of your current program, did you participate in any of the following? Please select all that apply.

- 1) Co-op; 2) Work experience; 3) Practicum; 4) Internship (unpaid); 5) Internship (paid); 6) Service learning (community service or volunteer activities recognized by the university); 7) None of the above

GRADUATING STUDENT SURVEY

Description: The Canadian University Survey Consortium (CUSC) Graduating Student Survey is targeted to undergraduate university students in their last year of study. The survey has been conducted since 1997.

Collected By: Canadian University Survey Consortium

Data Source: Student survey

Institution Types: Universities

Participating Institutions: 36 (2015)

Response rate: 32%

Types of WIL Included: Co-op, work experience, practicum, internship, service learning

Frequency of Data Collection: Triennial

Most recent year available: 2015

Publicly Available: Yes

Key Results:

- 55% participated in some type of work-integrated learning during their program
- 16% in practicums
- 16% in work experience
- 15% in service learning

POLYTECHNICS CANADA DATA

Description: Polytechnics Canada collects data from their member institutions regarding the percentage of each institution's programs that contain work-integrated learning. This data is collected by credential type and by type of WIL experience.

Collected By: Polytechnics Canada

Data Source: Administrative data (Institutional Research Departments)

Institution Types: Polytechnics

Participating Institutions: Algonquin; BCIT; Conestoga; GBC; Humber; NAIT; RRC; SAIT; SaskPoly; Seneca; Sheridan

Response rate: 100% of institutions

Types of WIL Included: Co-op; field experience; internship; professional practice

Frequency of Data Collection: Annual

Most recent year available: 2014/2015 & 2015/2016 (depending on the data)

Publicly Available: Yes

Key Results:

- 10,518 students were involved in applied research (2015/2016)
- 45,873 apprentices (2015/2016)
- 67% of degree, diploma and graduate certificate program include a WIL element (2014/2015)
- 82% of degree programs include WIL (2014/2015)
- 64% of diploma programs include WIL (2014/2015)
- 63% of graduate certificates include WIL (2014/2015)

URL: <http://www.polytechnicscanada.ca/polytechnic-advantage/work-integrated-learning>

Question Wording:

Not applicable.



BACCALAUREATE GRADUATE SURVEY

Description: The Baccalaureate Graduates Survey (BGS) is directed at graduates from all public degree granting institutions in British Columbia. It is one of the annual surveys that make up BC Student Outcomes. Since 2000, the BGS has been tracking the outcomes of baccalaureate graduates, both two and five years post-graduation.

Collected By: Government of British Columbia

Data Source: Student survey

Institution Types: Colleges, Universities, and Polytechnics

Participating Institutions: 19 of the 25 BC public postsecondary institutions (University of British Columbia, Simon Fraser University, University of Victoria, Thompson Rivers University, Vancouver Island University, British Columbia Institute of Technology, University of the Fraser Valley, Kwantlen Polytechnic University, University of Northern British Columbia, Emily Carr University of Art and Design, Royal Roads University, Douglas College, Langara College, Okanagan College, Capilano College, Camosun College, Vancouver Community College, North Island College, Nicola Valley Institute of Technology). The majority (over 80%) of survey respondents are university graduates.

Response rate: 45%

Types of WIL Included: Co-op term, internship, job shadow, practicum, and/or volunteer requirement

Frequency of Data Collection: Annual

Most recent year available: 2014 (Class of 2012)

Publicly Available: Yes

Key Results:

- 45% participated in paid or unpaid work experience as part of their program

URL: http://outcomes.bcstats.gov.bc.ca/Publications/BGS_Publications/BGSPublications.aspx

Question Wording:

Q. INTERVIEWER: Did you participate in any paid or unpaid work experience as part of your program? For example: co-op term, internship, job shadow, practicum, and/or volunteer requirement.

Q. WEB: Did you participate in any paid or unpaid work experience as part of your program?

WEB MOUSE-OVER NOTE: Mouse-over on “work experience” = “E.g., co-op term, internship, job shadow, practicum, and/or volunteer requirement.”

1. Yes; 2. No; 8. Don't know; 9. Refused

GRADUATE OUTCOMES SURVEY

Description: The Maritime Provinces Higher Education Commission (MPHEC) Graduate Outcomes Survey is directed at Maritime university graduates. Since 1997, MPHEC has been tracking graduate outcomes both two and six years post-graduation.

Collected By: Maritime Provinces Higher Education Commission

Data Source: Student survey

Institution Types: Universities

Participating Institutions: 14 (Acadia University, Cape Breton University, Dalhousie University, Mount Allison University, Mount Saint Vincent University, Nova Scotia College of Art and Design, Saint Mary's University, St. Francis Xavier University, St. Thomas University, Université de Moncton, Université Sainte-Anne, University of King's College, University of New Brunswick, University of Prince Edward Island)

Response rate: 27%

Types of WIL Included: Work placements

Frequency of Data Collection: Biannual

Most recent year available: 2014 (Class of 2012)

Publicly Available: No

Key Results:

- 28% of first degree holders (graduates who did not have any PSE prior to enrolling in the degree completed) had a work placement as part of their program.
- Of the 28% who had a work placement, 55% indicated that the work placements were part of a co-operative education program.

URL: Not applicable.

Question Wording:

Q. During the course of the program you completed in 2012, did you have any work placements as part of your program?

IF YES: Q. Were the work placements part of a Co-operative Education Program?

GRADUATING STUDENT SURVEY ON LEARNING AND WORK

Description: The Graduating Student Survey on Learning and Work was part of a large HEQCO-funded study examining work-integrated learning in Ontario's postsecondary sector. The survey was conducted one time only and was designed to measure the impact of Ontario postsecondary students' workplace and volunteer experiences – including their participation in WIL – on postsecondary learning outcomes and students' overall satisfaction with their postsecondary education.

Collected By: HEQCO and Academica Group

Data Source: Student survey

Institution Types: Colleges, Universities, and Polytechnics

Participating Institutions: 13 (Algonquin College, Carleton University, George Brown College, Georgian College, Laurentian University, Niagara College, Sheridan College, University of Ottawa,

University of Waterloo, University of Windsor, Western University, Wilfrid Laurier University and York University)

Response rate: 23%

Types of WIL Included: Co-op work terms, internships, practicums, clinical placements, field placements, applied research projects, and service-learning

Frequency of Data Collection: One-time only

Most recent year available: 2012

Publicly Available: Yes

Key Results:

College

- 68% had or would be participating in WIL prior to graduation
- 29% field placement
- 19% practicum/clinical placement
- 19% co-op
- 15% internship
- 7% applied research projects
- 4% service learning

University

- 48% had or would be participating in WIL prior to graduation
- 15% practicum or clinical placement
- 13% co-op
- 11% internship
- 8% field placement
- 7% applied research project
- 6% service learning

URL: http://www.heqco.ca/SiteCollectionDocuments/WIL_Experience_ON_Graduates_ENG.pdf

Question Wording:

Q. By the time you complete your current postsecondary program, will you have participated in work-integrated learning? Some examples of work-integrated learning are co-op work terms, internships, practicums, clinical placements, field placements, applied research projects, and service-learning.

1) Yes, I have already participated in work-integrated learning; 2) I have not participated yet in work-integrated learning, but will before I graduate; 3) No, I will not be participating in work-integrated learning

Q. We would like to know more about your specific work-integrated learning experience.

Did you participate in a co-op program? A formal co-op program alternates periods of academic study with periods of paid work experience, which are developed and/or approved by the institution.

1) Yes, and I will be graduating from the co-op program; 2) I started in co-op, but transferred to a non co-op program; 3) No

Q. Did you participate in a practicum or clinical placement?

1) Yes; 2) No

Q. Which of the following best describes the other type(s) of work-integrated learning in which you participated? (Select all that apply)

- 1) Field placement (to gain practical experience in an authentic or simulated work setting);
- 2) Internship (to gain program-related experience in a professional work environment);
- 3) Applied research projects (projects to address business or industry needs);
- 4) Service-learning (working with non-profit organizations to address identified community needs or global issues)



WORK-INTEGRATED LEARNING IN CANADA

CONCLUSION & CORE RECOMMENDATIONS



While the number of WIL opportunities available to postsecondary students in Canada continues to grow, there remains little in the way of a standardized, nation-wide approach to increasing WIL participation. There is also little consensus around a common language for describing WIL; as a result, there remains some level of confusion around the breadth of activities that may qualify as WIL as well as the specific benefits and challenges that WIL may present to different stakeholder groups.

In addition to the challenges presented by the lack of a clear definition of WIL, there are a number of barriers that may inhibit more widespread adoption of WIL. Among these are a number of barriers that are specific to certain stakeholder groups. However, in general, the primary challenges cluster around four key areas: resourcing and economic issues; administrative burden; supply and demand; and assessment challenges.

To mitigate these challenges, and to promote the development of high quality, high value WIL experiences for students across the postsecondary spectrum, we have identified from the relevant literature a number of best practices for WIL program design, as well as the following core recommendations:

1. Adopt a common language: adopt a standard definition of WIL as well as each type of WIL to help build a shared understanding
2. Improve data collection: Develop a strategy to collect and consolidate data on WIL participation on a national scale
3. Build in an evaluation mechanism: Develop an outcome-based framework to evaluate the success of WIL initiatives that can be deployed as a tool to enable the continual improvement of programs
4. Coordinate efforts between stakeholder groups: Ensure that each stakeholder group, including institutional administrators, faculty, students, and industry and community representatives, are involved in any large-scale WIL initiative and encourage these groups to work together to promote a national strategy.

WORK-INTEGRATED LEARNING IN CANADA
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(Footnotes)

1 The most recent NGS collected data three years post-graduation.





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