Work-Integrated Learning and Career-Ready Students: Examining the Evidence

Higher Education Strategy Associates Intelligence Brief 5

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Introduction and Background

Post-secondary students participate in all types of work-related activities while in school, ranging from summer jobs to co-op programs. There is general consensus that certain types of work, namely those set up and coordinated by post-secondary institutions—sometimes called "work-integrated learning" (WIL)—produce benefits for students such as job readiness skills and knowledge.

The term "work-integrated learning" broadly refers to educational programs that incorporate a workplace-based component but are also connected to classroom learning or an individual's program of study. Although the term "work-integrated learning" is not used universally across all types of post-secondary level programs that include a work-based or practice-based component, the term has been adopted by universities around the globe to identify programs that add a practical employment-based learning component to school-based learning.

It is widely accepted that WIL opportunities have value and produce benefit for students and employers, including employment readiness (such as gaining job-related skills and knowing what kind of job opportunity a student would want to have after graduation) but there is little actual research on the topic, especially in Canada. One key topic which remains unexplored is the *comparative* benefit of WIL; that is, the extent to which some kind of institutionally-structured learning experience differs from the learning and career benefits that are obtainable from other types of student work experiences.

The purpose of this research was to explore various types of work in which PSE students participate, and understand their benefits and impact from a student perspective. Participation rates in various types of work (both structured WIL employment and non-WIL employment) were explored, as were student-reported outcomes such as career/job readiness, application of school knowledge to job practice and learning of workplace skills. A key goal of the research was to describe not just the absolute benefits of WIL opportunities, but also its *value-added* over other forms of work.

What is Work-Integrated Learning?

Work-Integrated Learning (WIL) refers to types of student employment experiences that are usually organized by their institution, related to their field of study and geared toward making connections between classroom learning and on-the-job experiences.

In Australia, where WIL was the focus of an extensive national scoping study in 2008 (Patrick et. al, 2008), it was defined as "an umbrella term used for a range of approaches and strategies that integrate theory with the practice of work within a purposefully designed curriculum." The World Association for Co-operative Education,[1] an international organization with representatives from 46 countries around the world that promotes programs combining professional work experience with school-based learning, defined work-integrated learning as a combination of professional work experiences with classroom studies, in variable formats that can include any of the following:

- Research
- Study Abroad
- Student Teaching
- Community Service
- Cooperative Education
- Internships
- Service Learning
- Clinical Rotations
- Industry Attachments
- Professional Work Placements

Other frameworks for the classification of various types of Work-Integrated Learning (Gibson et al, 2002) include the following programs:

- Pre-course experience
- Co-operative courses
- Joint industry-university courses
- Placement or practicum
- Post-course internship
- Sandwich courses
- Cognitive apprenticeship or job shadowing
- New traineeships and apprenticeships
- Fieldwork

In a 2011 study, Sattler reviewed available literature and conducted key informant interviews with stakeholders at several Ontario colleges and universities on the topic. He developed the following typology for WIL in Ontario as follows:

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

[1] World Association for Co-operative Education website: http://www.waceinc.org/mission.html

From this brief overview, it is clear that the term "WIL" covers a wide variety of experiences. Some of them involve paying jobs, others do not. Some of them are mandatory while others are voluntary. Some last an entire semester, while others may last only a few days. Even if it is widely accepted that WIL programs are valuable because they align theoretical classroom learning with practical workplace skills, it would not be reasonable to expect that the different types of WIL would have consistent outcomes. Unfortunately, while there has been a great deal of research on specific forms of WIL (mostly co-op), there has been little research that compares outcomes.

For instance, Downey, Kalbfleisch and Truman (2002) suggested that co-operative education was associated with improved labour market outcomes for Ontario university graduates, including reduced student debt-load, higher rates of employment, increased rates of permanent employment and a greater match of employment to work-integrated program. These findings have been used to argue for the expansion of cooperative education programs. Walters and Zarifa (2008) compared the outcomes of students in university and college co-op with those in non-co-op programs. The research found that the extent of the advantage conferred by co-operative programs varied with the level of graduates' earnings, their employment status (part-time versus full-time), and the level of post-secondary study (college or university) and specifically, that the co-op "advantage" was higher at the university level than at the college level.

A Canadian Council on Learning (2009) review of international research about the impacts of experiential learning at the secondary school level showed that programs that included an experiential learning component contributed to increased rates of either program completion or student retention. In a similar vein, a second study by CCL (2007) focusing on WIL in New Brunswick found that two-thirds of students participating in such programs reported that the experience helped them to identify their academic direction, and three-quarters reported that WIL helped them to identify their career direction. Ninety-one percent of students and seventy percent of employers rated the WIL experience valuable.

Not all forms of WIL have been especially well-covered by the literature; in the existing Canadian research, co-op has been the focus essentially to the exclusion of almost all other forms of WIL.[2] But it is a particularly intense form of WIL; usually, it lasts longer, involves pay and is highly integrated into academic programs. Though other forms of WIL share some of its characteristics, it would be a stretch to suggest that they are equally able to deliver benefits since they are usually less intense treatments.

[2] A wider search of the literature would include a large amount of research on concepts like "service learning"; the results of which read very similarly and reach similar conclusions to the Canadian co-op literature.

Our Approach to Work-Integrated Learning

It is somewhat remarkable that the outcomes of WIL – the purported benefits of which depend in large part on the phenomenon of experiential learning – are not usually examined in the context of other forms of experiential learning. Even without the aid of institutionally-structured WIL programs, students often seek out work opportunities (paid or unpaid) that are related to their academic program and/or career interests. These may give them opportunities – albeit unstructured ones – to apply classroom learning and to gain valuable on-the-job learning. To some extent, all student work opportunities are learning opportunities. Conversely, there are also work opportunities on campus which are academically-related but which do not always have a clear link to the labour market. Teaching Assistantships and Research Assistantships, for instance, are both forms of labour linked to one's field of study but don't involve interaction with outside employers. And finally there are volunteer opportunities; experiences that students seek out themselves and may be substantially similar to internships and the like, but which are not structured by an institution.

For the purposes of this research, we therefore look at seven different types of work experiences which can provide learning opportunities, as defined below in Table 1.

Table 1: Definitions of Work Experiences Used in This Report

Institutionally-structured Work Experiences	
Co-op Programs	Semester-long paid work placements that are an integral part of an academic degree program based on alternating academic and work terms.
Internships/Placements/Practicums	An amalgam of non-co-op work placements. They are often shorter than co-op placements and are less likely (especially in the case of practicums) to involve remuneration. These involve a placement in a work environment outside the institution, but are **not** part of a system that alternates work and learning the way co-op does.
Research Assistantships/Academic Fieldwork	Various forms of paid assistance to professors engaged in research projects or structured work (either paid or unpaid) with a strong research application.
Teaching Assistantships	Acting as a classroom aide to a professor. May involve leading tutorials.

Unstructured Work Experiences	
Volunteering	Any sustained, long-term volunteer experience which involves substantial organizational responsibility
In-school Work	Paid work undertaken while the student is enrolled either full or part-time in higher education. In this study, January 2011 is the reference month for employment
Summer Work	Paid work undertaken in the summer months. In this study, summer 2010 is the reference period for employment.

Some of these types of work experiences, straddle the notions of "work-integrated-learning". Teaching and research assistantships are structured academic work experiences but are not always (or even usually) connected with working for non-academic employers. Volunteer experiences may closely resemble certain types of internships and are missing only the element of institutional imprimatur (indeed, in some respects the difference between internships and volunteer was about who was doing the integrating).

There can be legitimate differences in how individuals define Work-Integrated Learning . Our research design, by focusing specifically on the seven types of work experience outlined in Table 1, will allow readers to draw their own conclusions on Work-in-Learning depending on what they wish to include or exclude from their definition.

Research Methodology

This research was conducted by Higher Education Strategy Associates' Canadian Education Project through our CanEd Student Research Panel. HESA/CanEd runs an ongoing online panel with a membership of over 8,000 undergraduate students who have been enrolled in an undergraduate program in a Canadian degree-granting institution at some point in the 2010-11 academic year and have indicated that they are returning for study in 2011-12. Roughly every six weeks, HESA sends them a survey on a variety of issues, with a response rate that varies from month to month, usually in the range of 25% to 40%.

The results of this online survey were based on questions asked of 2,148 students enrolled in Canadian universities during January 2011. As results of online panel-based surveys are not based on random probability samples, "margin of error" is not applicable. This is consistent with the Market Research and Intelligence Association's (MRIA) current code of practice.

As with most student surveys, females are slightly over-sampled as they appear to be likelier to respond to surveys than males. Our panel is also slightly overweight in Ontario and underweight in Quebec (specifically, it is underweight at Francophone universities, meaning it is a highly Montreal- and Anglo-centered sample). It is also biased towards upper-year students. Exact numbers in the sample change from month-to-month; up-to-date details of the survey demographics are available on request by contacting the authors.

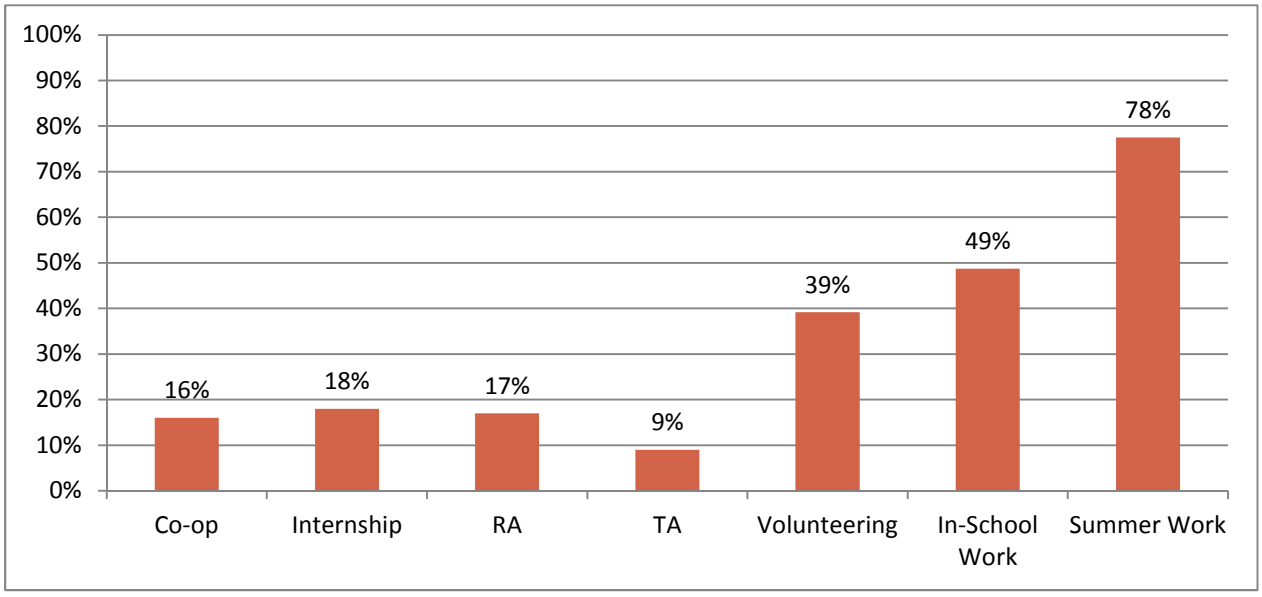
In this report, as in all CanEd reports based on data from our student panel, the data has been re-weighted based on publicly available data on gender and province of enrolment. This corrects for differences in response rates among males and females and by region, and produces results that are more representative of the Canadian undergraduate population.

Results

Student Participation in Work

Canadian university students participate in a variety of work opportunities on and off campus. Nearly 80% of students said they held a summer job in the previous summer, and 49% of respondents said they held a job during the school year. Thirty-nine percent of students said they had at some point held a long-term volunteer position that involved substantial organizational responsibility. In terms of structured work opportunities, 16% said they had participated in co-op, 18% in an internship, 17% in some kind of research assistantship and 9% in a teaching assistantship. There is, however, a considerable amount of overlap between these four types of work; in fact, only 42% of students said they had ever had one of the four types of work.

Figure 1: Student Participation in Work by Type



As Table 2 shows, participation in various forms of work differs somewhat by field of study. Because of the structure of their programs, Math & Computer Science and Engineering & Architecture students, for instance, are substantially more likely to report co-op participation and substantially less likely to report "summer work" or volunteering than students in other fields of study. Internships (which, as noted above, is something of a catch-all category which includes placements, practicums, etc.) are very common among students in education and health fields but less so elsewhere. Students in Humanities, Social Sciences and Visual Arts have extremely low levels of co-op participation.

Table 2: Student Participation in Types of Work by Program of Study

	Co-op	Internship	RA	TA	Volunteer	In-School Work	Summer Work
Education	11%	61%	7%	29%	41%	46%	88%
Visual & Performing Arts	4%	22%	3%	12%	38%	48%	74%
Humanities	4%	15%	13%	9%	48%	54%	83%
Social Sciences	7%	13%	18%	4%	39%	45%	74%
Health and related	13%	32%	12%	3%	36%	44%	70%
Business	18%	10%	9%	4%	33%	48%	74%
Physical & Life Sciences	12%	9%	30%	10%	42%	44%	75%
Math & Computer Science	46%	4%	19%	18%	26%	51%	56%
Engineering & Architecture	45%	19%	20%	10%	26%	37%	67%
Agriculture & Environmental Sciences	27%	6%	20%	6%	48%	45%	67%

The demographics of participation in the various types of work are shown in Table 3. Men were more likely to participate in co-op programs compared to female students, though this effect is an artefact of gender distribution amongst programs rather than a pure gender effect. After controlling for field of study, the gender difference disappears. Students with higher grade point averages were more likely to participate in all the types of WIL, and those with top grades (95%+) were much more likely to participate in research and teaching assistantships. More surprisingly, summer work experiences were also correlated with higher grades. Students in their final year of university were more likely to report participation in research and teaching assistantships. This was also correlated with older students or students aged 22-24 and 25+.

Table 3: Demographics by Type of Work

	Co-op	Internship	RA	TA	Volunteer	In-School Work	Summer Work
Self -reported grade							
95%+	10%	31%	49%	20%	31%	42%	81%
90-94.9%	12%	22%	30%	15%	33%	57%	82%
85-89.9%	21%	19%	20%	12%	40%	48%	76%
80-84.9%	16%	19%	20%	13%	44%	51%	77%
75-79.9%	17%	17%	11%	6%	39%	48%	72%
70-74.9%	16%	16%	8%	5%	37%	43%	75%
Less than 70%	14%	17%	14%	4%	35%	37%	65%
Gender							
Male	23%	15%	21%	10%	34%	45%	69%
Female	11%	21%	15%	9%	42%	48%	78%
Parental Education							
High School completion or less	16%	23%	14%	10%	39%	47%	70%
College, CEGEP, Trade	14%	18%	16%	11%	38%	48%	79%
Bachelor's Degree	15%	18%	18%	8%	36%	45%	74%
Professional Degree	8%	16%	19%	14%	40%	31%	76%
Master's Degree	22%	19%	22%	10%	45%	53%	71%
Doctorate	22%	13%	11%	6%	41%	50%	78%

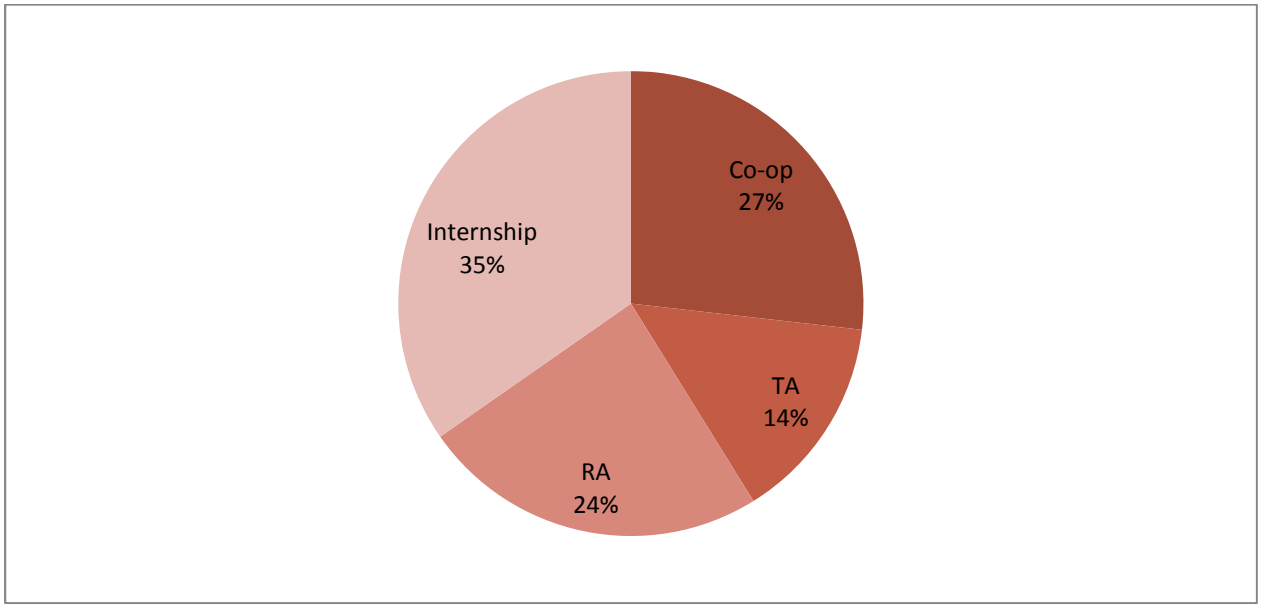
Language							
French	23%	36%	32%	15%	36%	34%	76%
English	15%	19%	14%	10%	37%	49%	81%
Other	29%	13%	22%	9%	34%	47%	52%
Region							
Atlantic Canada	10%	14%	19%	15%	33%	52%	84%
Quebec	11%	24%	24%	8%	40%	41%	66%
Ontario	21%	18%	16%	11%	40%	46%	72%
Manitoba/Saskatchewan	9%	19%	13%	9%	41%	56%	84%
Alberta	11%	19%	16%	6%	33%	52%	88%
British Columbia	15%	13%	15%	5%	39%	47%	76%
Type of Institution							
Medical Doctoral	10%	20%	21%	7%	41%	40%	76%
Comprehensive	29%	12%	13%	10%	36%	50%	65%
Primarily Undergraduate	10%	24%	18%	13%	39%	51%	82%

	Co-op	Internship	RA	TA	Volunteer	In-School Work	Summer Work
Time to graduation7							
Less than 1 year to grad.	19%	26%	29%	13%	41%	49%	73%
1 year to grad.	15%	16%	16%	8%	37%	48%	72%
2 years to grad.	12%	15%	9%	8%	38%	40%	77%
3 years to grad.	27%	8%	8%	6%	39%	51%	75%
3+ years to grad.	9%	11%	0%	2%	30%	68%	82%
Age							
18 years old	23%	8%	14%	23%	31%	43%	85%
19 years old	12%	8%	6%	4%	36%	39%	80%
20 years old	14%	13%	9%	9%	41%	41%	76%
21 years old	17%	18%	17%	11%	36%	51%	77%
22-24 years old	22%	24%	26%	11%	42%	49%	70%
25+ years old	11%	30%	29%	12%	36%	54%	67%

Recent Participation in Institutionally-Structured Learning Experiences

As noted earlier, a number of students had participated in more than one form of institutionally-organized work experiences. To simplify the survey instrument, students were asked only about their *most recent* Work-Integrated Learning experience. One-third of students who reported participating in institutionally-structured work opportunities said that they most recently participated in service learning, placements, internships and practicums. Slightly smaller numbers reported participation in co-op placements and research assistantships and academic fieldwork, as shown below in Figure 2.

Figure 2: Most Recent Participation in Institutionally-Structured Learning



Note: where students indicated having participated in more than one kind of institutionally-structured learning activity, only the most recent type was counted in Figure 2.

When asked about the length of their most recent institutionally-structured work experience, three-quarters of participants who had participated in one said that their program was more than two months in length, as shown in Table 4.

Table 4: Length of Most Recent Institutionally-Structured Work Experience

	Less than 2 weeks	Between 2 weeks and 1 months	Between 1 and 2 months	More than 2 Months
Co-op	3%	1%	2%	94%
Internships	11%	11%	18%	60%
Research Assistantship	7%	7%	5%	82%
Teaching Assistantship	15%	7%	14%	64%

Co-op programs were nearly all over two months in length, meaning they filled all or virtually all of an academic term. Internships – a category which includes practicums, professional placements, service learning, etc. – were the class of work more likely to be of short duration, though even here six out of ten jobs were of 2 months or more in length.

Non-Structured Work and the Relationship to Field of Study

As earlier research has shown (Kaznowska and Usher 2011), the summer job market in Canada was experienced very differently by students in different fields of study: Engineering, Computer Science and Business students tended to have jobs that were both better-paid and more aligned with their field of study. For this research, we asked students to describe the relationship between their education and their most recent summer-job, in-school job or volunteer position. Students could describe the relationship as "PSE not related to area of work", "PSE was required, but field of study did not matter very much", "my field of study was useful, but others would have been good, too", and "my field of study was the only possible or by far the best one for the job".

As Table 5 shows, most non-structured work opportunities were not highly related to a student`s program of study, as shown below in Table 5. However, students in Math & Computer Science and Engineering & Architecture were substantially more likely than others to report a strong relationship between field of study and paid employment; students in Education reported a much stronger connection between school and volunteer efforts.

Table 5: Percentage of Students who Reported that their Field of Study was the Best Possible Field for their Work/Volunteer experience

	Summer Job	In-School Job	Volunteer
Education	15%	12%	48%
Visual & Performing Arts	8%	15%	6%
Humanities	8%	12%	10%
Social Sciences	5%	6%	18%
Health & Related Fields	19%	27%	6%
Business	19%	22%	7%
Physical & Life Sciences and Technologies	15%	17%	22%
Math & Computer Science	26%	42%	0%
Engineering & Architecture	23%	35%	11%
Agriculture & Environmental Sciences	19%	6%	8%
All Students	**16%**	**19%**	**16%**

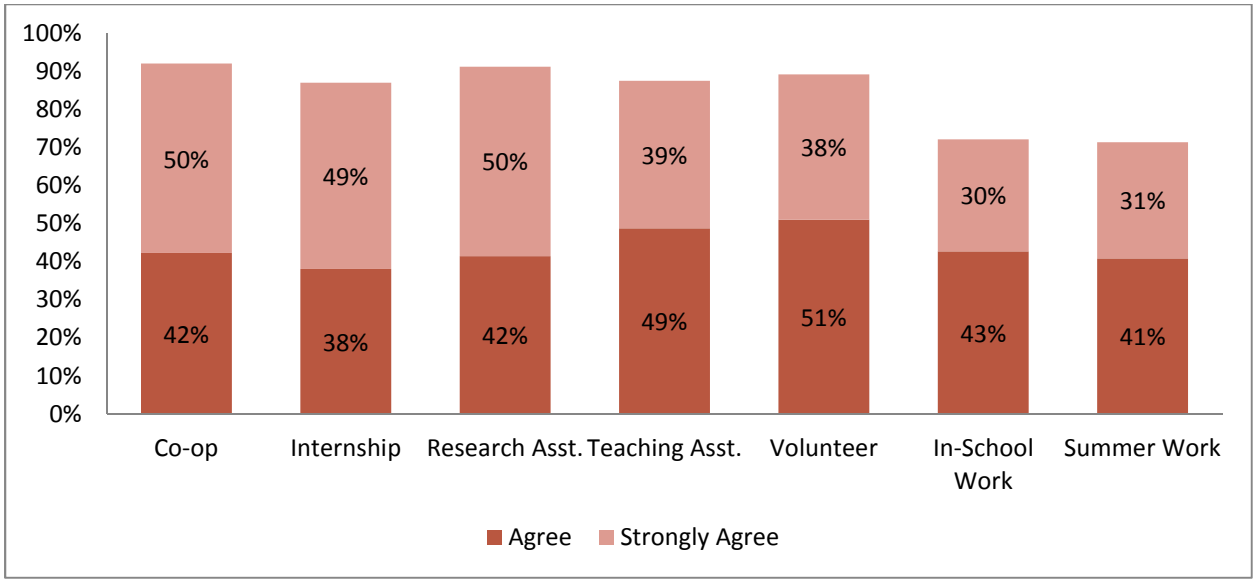
Forty-two percent of Math & Computer Science and thirty-five percent of Engineering & Architecture students reported that their current program of study was the best possible field for their in-school job. Students in these two fields of study were also likeliest to agree that their fields of study were the best possible field for their summer job. Students in Education were by some distance the likeliest to say that their field of study was best for their volunteer experience.

Application of School-Related Knowledge to Workplace Practice

Respondents were asked if they thought their most recent experience in each of the various types of work improved the application of school-related knowledge to workplace practice. First, they were asked how specific skills were improved by their work experience, including critical thinking, understanding classroom concepts, improving technical skills related to fields of study, understanding workplace culture and improving inter-personal and communication skills.

A majority of students agreed that all types of work improved their critical thinking, analytical thinking, problem solving and decision-making skills, as shown below in Figure 3. However, there were differences between different types of work. All of the institutionally-organized work experiences show similar levels of self-reported improvement in critical thinking, but self-organized volunteering shows more or less the same effects. A large majority of students also reported agreeing with this statement with respect to paid part-time or summer work; however, the level of agreement was roughly 15-20 percentage points lower than it was for the other five forms of work.

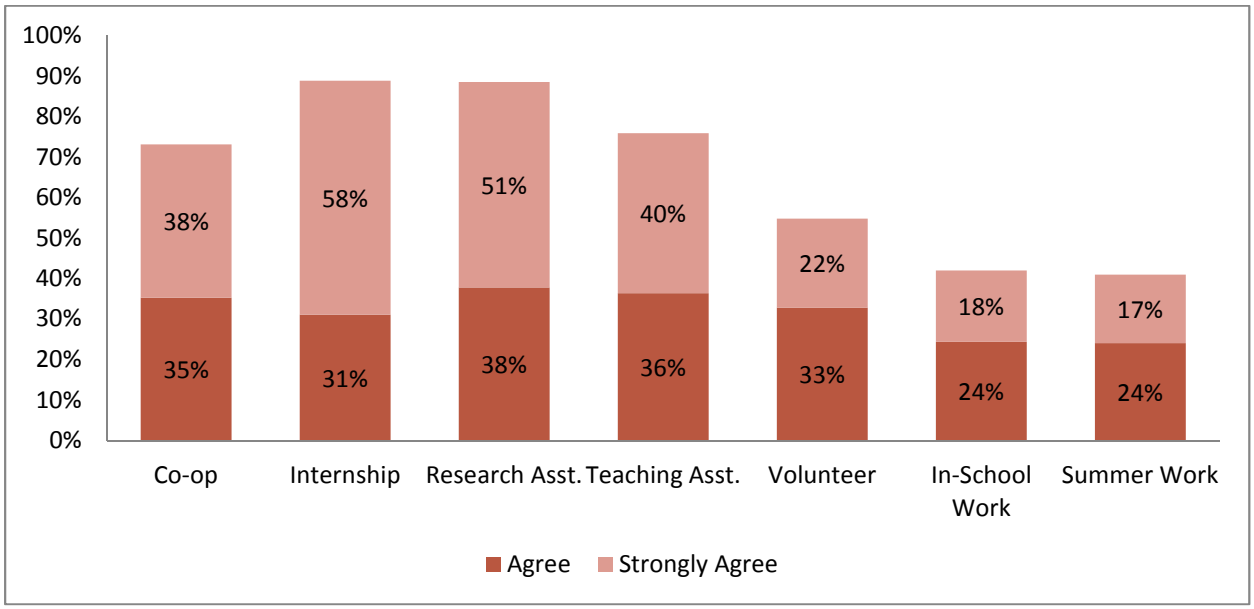
Figure 3: Work Had a Positive Impact on Critical & Analytical Thinking, Problem Solving and Decision Making Skills



When asked how work provided a better appreciation of concepts learned in the classroom, students reported that structured work opportunities did a better job of this than non-structured ones. Intriguingly, though, they gave relatively low marks (only 73% agreement) to co-op placements as a way to get an appreciation of real-world applications; all three of the other structured experiences were given higher marks, with teaching assistantships at 76%, and research assistantships and internships both at 89%.

Figure 4

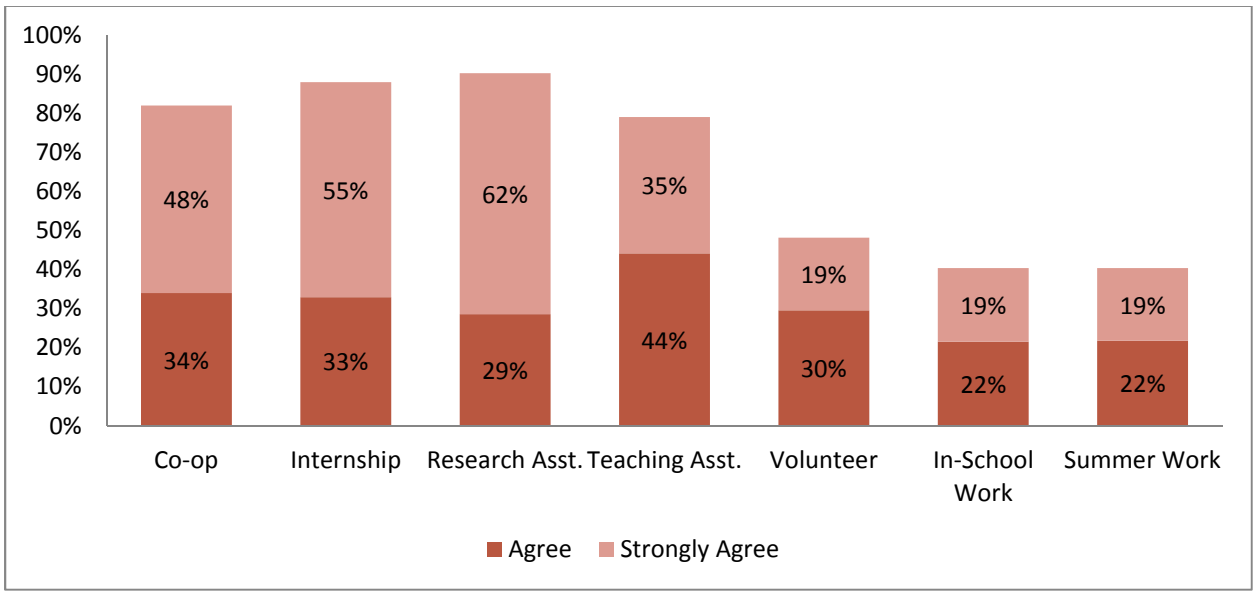
Figure 4: Work Provided a Better Appreciation of Concepts Learned in the Classroom and their Application in the Real World



With respect to non-structured opportunities, there were some significant differences by field of study. For instance, summer work was thought to provide a better appreciation of the application of academic concepts by only 41%. However, a majority (55%) of Business students reported that their summer jobs provided them with a better appreciation of classroom concepts; conversely, students in Visual & Performing Arts, Social Sciences, and Humanities students reported lower levels of agreement, with 32, 36 and 35 percent agreement rates.

Finally, students were substantially more positive about structured than about non-structured work opportunities in terms of their work experience improving their knowledge and technical skills in areas related to their field of study.

Figure 5: Work Improved Knowledge and Technical Skills in Areas Related to Field of Study

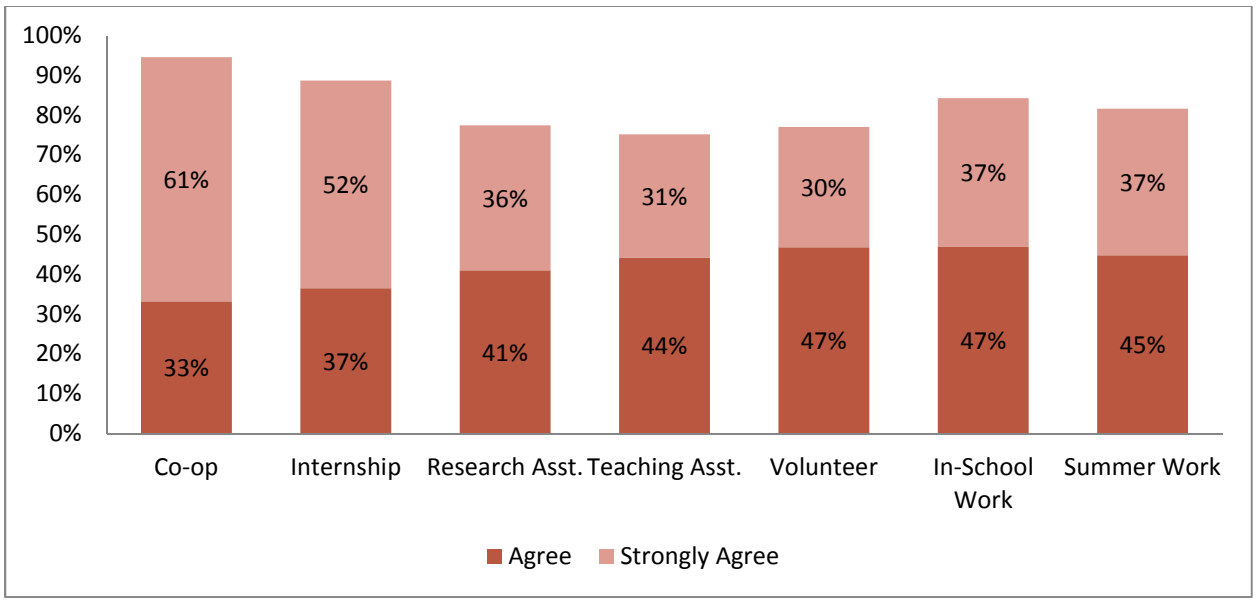


Among structured opportunities, research assistantships were most likely to be rated as improving these skills (91% agreement) and teaching assistantships (79%) the least. Among non-structured opportunities, volunteering is most likely to be rated as having a positive impact (49%), with paid work coming in at just 41%. Here, too, program of study made a difference. Education students were significantly more likely than average to agree that their volunteer opportunities had a positive impact (77%), Engineering students were most likely to rate summer work as having a positive impact (58%) while Math & Computer Science were likeliest to say the same of their in-school jobs (67%).

Development of Workplace Skills

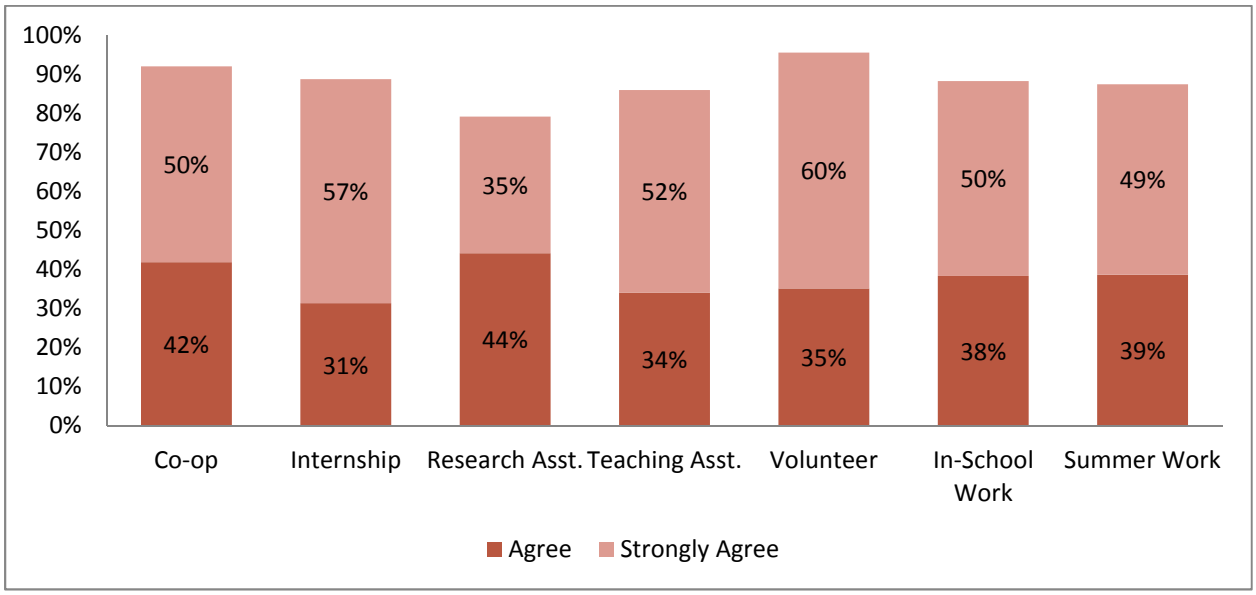
In terms of developing a better understanding of workplace culture, norms and behaviour, structured learning opportunities were not all seen as being more valuable than non-structured opportunities. Co-ops and internships came top, but there were no significant differences between volunteer work, summer and in-school jobs, TAships and RAships.

Figure 6: Work Provided a Better Understanding of General Workplace Culture, Norms and Behavior



Participants similarly made little distinction between different types of work experiences in terms of improving their interpersonal skills. Six of the types of work received agreement levels of 85% or higher when students were asked if their interpersonal skills were improved; only research assistantships (which presumably are somewhat more likely to involve solitary work than other types of work) was lower, at 79%.

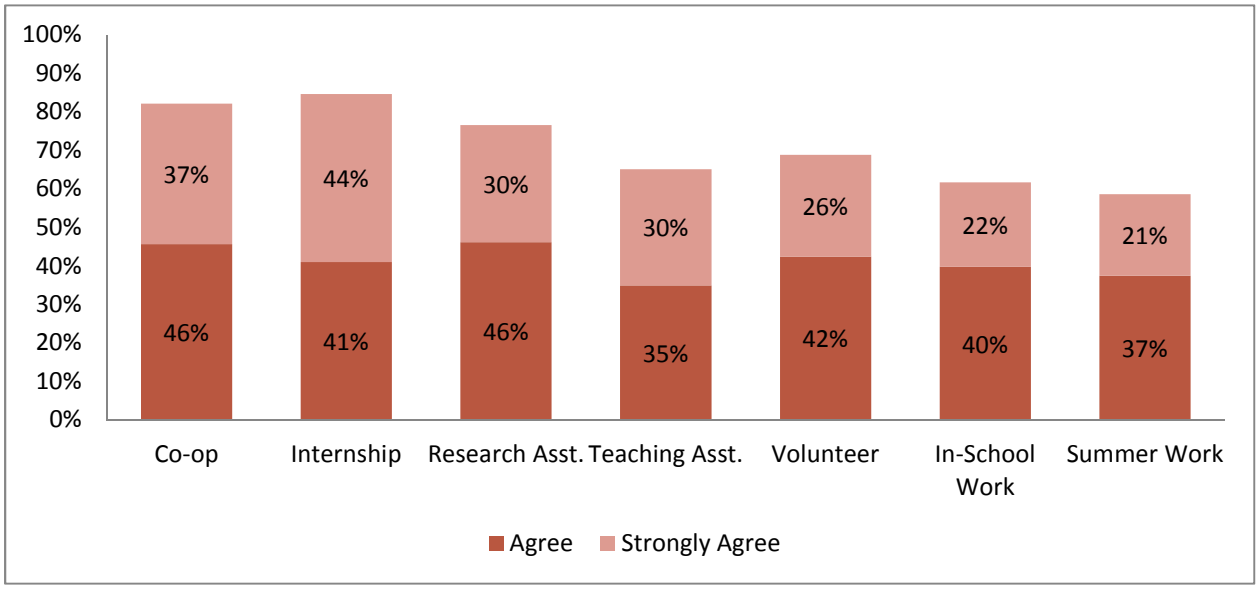
Figure 7: Work Improved Interpersonal Skills (e.g. Team-Work, Communication, Conflict Resolution and Similar Skills)



Preparation for Future Work

Respondents were asked to report on the extent to which participation in different types of work gave them a better idea of a career or job path and confidence in their ability to find work and work in their field of study after graduation. A majority of students agreed that all types of work gave them a better idea of what they wanted to do with their lives, but the numbers were notably higher for co-ops and internships than for non-structured paid work. However, not all forms of structured employment experience received higher ratings than non-structured ones; students were likelier to agree that volunteer opportunities gave them a sense of future career paths than they were to agree that Teaching Assistantships did.

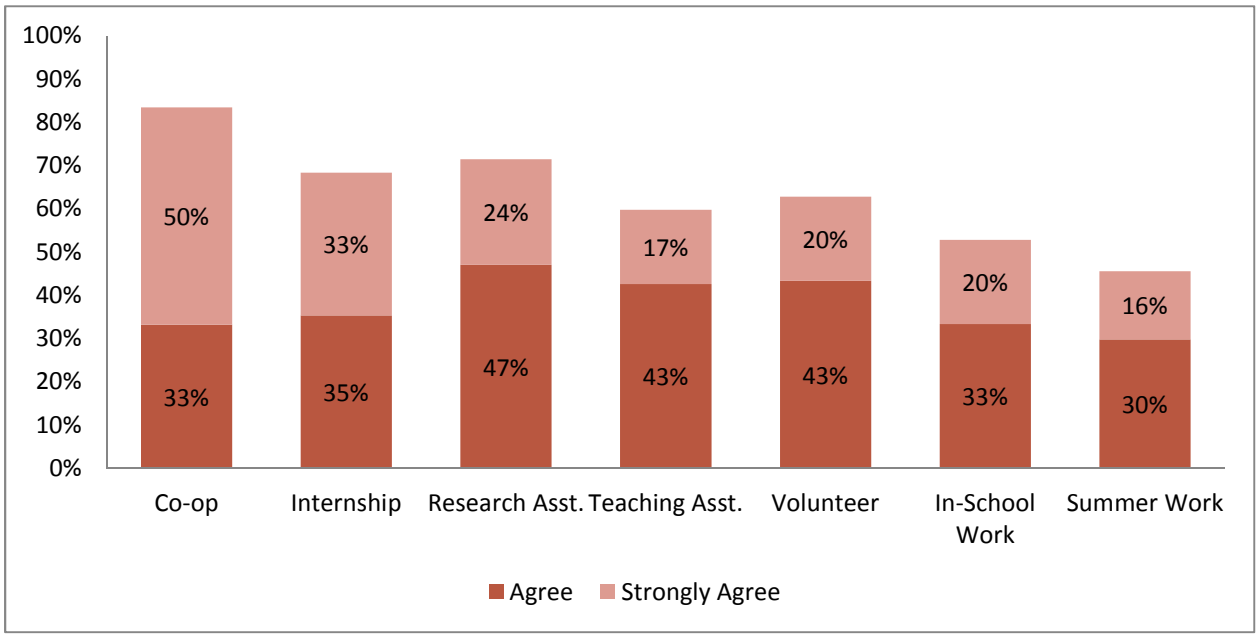
Figure 8: Work Gave Me a Better Idea of What to Do with My Life



Some of the field of study patterns we have seen on previous questions can be seen here as well. Education students has especially high levels agreement regarding the positive impact of their volunteering on improving career choice (86%), Math & Computer Science students were in a similar position with respect to in-school work (71%) as were Agriculture & Environmental Sciences students with respect to summer work (65%).

Students were also asked about the whether their work experience is likely to help them finding a job after graduation. Respondents generally reported that structured work experience was better at this than paid work; however, volunteer experience received slightly higher levels of agreement on this question than did teaching assistantships.

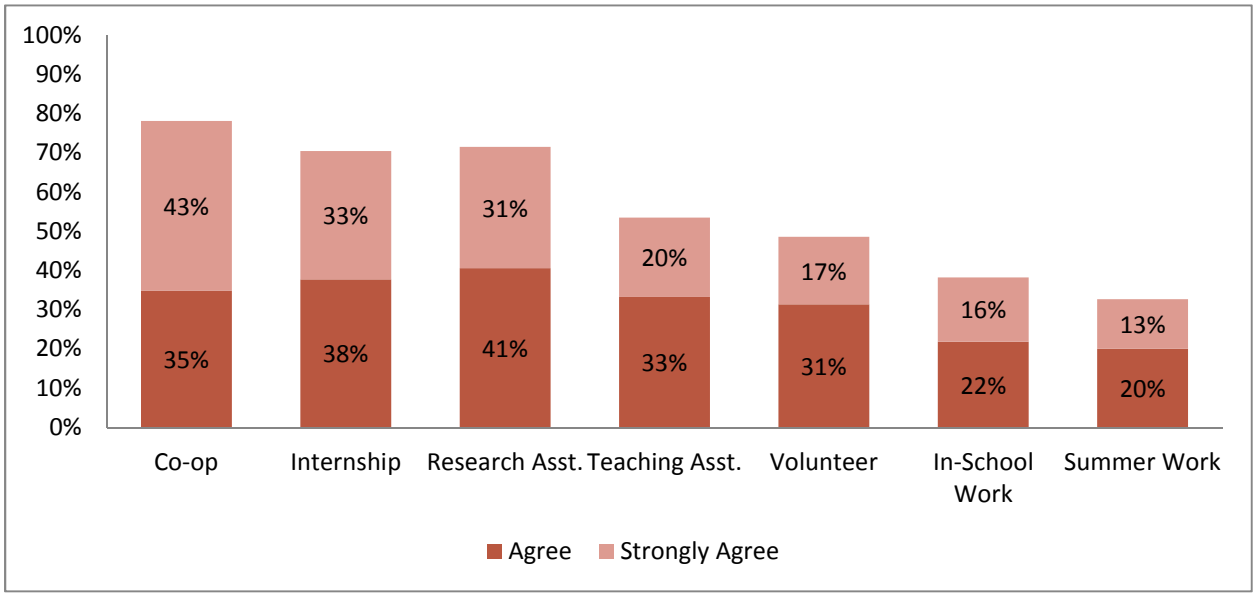
Figure 9: Work Will Make it Easier to Find a Job after Graduation



Once again we see a few common patterns with respect to field of study. Education students were most likely to report agreement with positive impact of their volunteering opportunity (77%), Math and Computer Science regarding the impact of their in-school work (67%) and Engineering students regarding the impact of their summer jobs (63%).

Finally, on the slightly more pointed question of various types of jobs being helpful in finding a job related to one's field of study, the pattern is essentially similar; all types of work (except internships) are rated as less helpful in finding career-related work than any work; the gap is larger for summer and in-school work than it is for institutionally-structured work opportunities.

Figure 10: Work Will Make it Easier to Find a Job Related to Field of Study after Graduation



However, here, program of study made a difference in the similar ways that it did in the question above: Education students were most likely to report agreement with positive impact of their volunteering opportunity (77%), Math & Computer Science regarding the impact of their in-school work (52%) and Engineering students regarding the impact of their summer jobs (60%).

Isolating the Value-Added of Different Work-Learning Opportunities

As we have seen throughout this paper so far, **all** forms of work clearly provide students with some benefits in terms of reinforcing academic concepts, obtaining workplace skills, and preparing students for future work. From a policy perspective, however, what is most interesting is looking at the *relative* efficacy of different types of experiences. In table 6, we use summer work – which is both the most commonly-obtained form of employment and the form of work which consistently receives the lowest levels of agreement that it provides learning benefits to students – as a baseline against which to compare all other forms of work.

Table 6: Differences Between Summer Work and Other Types of Work (percentage difference in "agree" and "strongly agree")

	Co-op	Internship	RA	TA	Volunteer	In-School Work
Provide a better appreciation of concepts learned in the classroom and their application in the real world	32%	48%	48%	35%	14%	1%
Improve critical thinking, analytical thinking, problem solving and decision making skills	21%	16%	20%	17%	18%	1%
Improve knowledge and technical skills in areas related to field of study	42%	48%	50%	39%	8%	0%
Provide a better understanding of general workplace culture, norms and behaviours	13%	7%	-5%	-7%	-5%	2%
Improve inter-personal skills (team-work skills, communication skills, conflict resolution skills and similar)	4%	1%	-9%	-2%	8%	0%
Gave me a better idea of what I want to do with my life	23%	26%	18%	6%	10%	3%
Will make it easier to find a job after graduation	38%	23%	26%	14%	17%	7%
Will make it easier to find a job related to my field of study after graduation	45%	38%	39%	21%	16%	5%

A couple of obvious conclusions stand out from this table. The first is that the perceived benefits of co-ops, internships and research assistantships are all very strongly positive and all of roughly the same magnitude. The result is particularly interesting with respect to research positions, because unlike the other two, they do not involve placements with organizations outside the university. The second is that teaching assistantships have a significantly lower level of perceived benefits than the other three forms of structured work experience and by and large does not fare better than student-initiated volunteering. Third and finally, no form of work does much better than summer work in terms of providing workplace-related skills. (i.e. better understanding of workplace culture, better inter-personal skills, etc.).

An important question, too, is *why* co-op experience is so valuable. Some insight into this can be gained by disaggregating student summer work experiences based on the degree to which the summer job is related to the student's field of study.

Table 7: Agreement that Summer Jobs Have Positive Outcomes, by Degree of Job's Relationship With Field of Study

	Best FoS Possible	Useful FoS	PSE required, FoS not impt.	PSE not required	Total
Improve your critical thinking, analytical thinking, problem solving skills and decision making skills	96.1%	87.4%	84.5%	54.7%	72.0%
Provide you with a better appreciation of concepts learned in the classroom and their application in the real world	91.4%	66.8%	38.8%	18.4%	43.5%
Improve your knowledge and technical skills in areas related to your field of study	95.7%	72.6%	37.7%	12.6%	42.6%
Provide you with a better understanding of general workplace culture, norms and behaviours	93.8%	89.5%	83.6%	75.1%	82.4%
Improve your personal and inter-person skills (team-work skills, communication skills, conflict-resolution skills and similar)	91.1%	88.2%	85.7%	83.6%	86.1%
Gave me a better idea of what I want to do with my life	89.9%	77.7%	65.0%	41.7%	60.2%

Will make it easier to find a job after graduation	91.8%	73.5%	60.6%	21.6%	49.0%
Will make it easier to find a job related to my field of study after graduation	91.9%	63.2%	36.0%	6.0%	36.2%

It turns out that provided summer jobs are highly related to one's Field of Study (which, as we saw in Figure 4, is not all that common outside Math & Computer Science and Engineering & Architecture), students view them as being equal to or even better than co-op jobs in terms of reinforcing concepts learned in class, obtaining workplace skills and career preparation. In other words, while co-op programs provide exceptional results, some students are able to arrange their own experiences that match co-op. It is possible, therefore, that co-op is just a really efficient way of getting students good temporary jobs and that the actual act of "integrating" the work learning with the class learning is something than may not require specific institutional intervention.

Summary of Findings and Policy Implications

Work-Integrated Learning is a term that has been categorized in various different ways by different researchers in Canada and abroad. A recent typology developed in Ontario (Sattler, 2011) served as the baseline for this research, in which the participation and impact of multiple forms of student work (including institutionally coordinated work as well as work not set up by colleges or universities) were explored from a student perspective.

The research showed that all forms of work experiences provided at least some benefits to students. These benefits included reinforcing concepts and skills learned in the classroom, obtaining workplace skill, and career preparation. In terms of obtaining workplace skills, students believed that all forms of work are more or less equal, (i.e. that institutionally-structured work opportunities do not provide much in the way of extra benefits in this area). However, regarding the reinforcement of academic learning and career preparation, student experience suggested that there was a clear hierarchy of work types:

- Co-ops, internships and research assistantships received the highest levels of agreement that they reinforced academic concepts and provide career preparation.
- Teaching assistantships and volunteer opportunities came next, with high levels of agreement that they reinforced academic concepts and provide career preparation, but still notably less than co-ops, internships and research assistantships.
- Summer and in-school employment scored the lowest.

Within each of these three groupings, there was relatively little difference between the different types of work, which may suggest that institutions can give students co-op like experiences through RAships, for instance, without implementing the wholesale re-design of the semester system that co-op requires.

Program of study made a difference: more than half of students in Education, Math & Computer Science and Engineering & Architecture were able to take advantage of co-op, internship and RA opportunities, whereas in Visual & Performing Arts, Social Sciences and Humanities, the figure was roughly one quarter. Here, it was not that the distributions of work opportunities were different; in many cases the actual experience was different as well. Students in Education, for instance, reported many more positive experiences than other students in both internships and volunteer positions. Similarly, students in Math & Computer Science and Engineering & Architecture all had much more positive experiences in summer an in-school work. Presumably this was because these disciplines were much likelier than others to describe these jobs as being closely related to their field of study.

In addition, program of study affected the impact of summer work: summer work was not always a weak source of reinforcing academic concepts and providing career preparation. Its impact depended on the degree to which the summer work was related to a students' program of study. If a student was lucky enough to find a job that was closely related to his or her field of study, then the benefits were on par with those in co-op.

Overall, co-op was the most effective form of work-integrated learning, as reported by student participants in this research and supported by other recent literature. The key question with co-ops as with other form of WIL remains: who is doing the "integrating," the students or the institution? The evidence presented in this research opens up the possibility that institutional control of the integration might not matter much, and that the overall benefit of co-op and other WIL is that they are any effective way of putting students into career-related, temporary employment. This finding points to some important follow-up questions about where the locus of integration is located.

This research also raised an important policy question: given the demonstrated benefits of institutionally-organized work experiences, why are they not better-distributed across the university? Granted, co-op might not work easily in all fields of study; but if various forms of research assistantship and field work provide essentially the same benefits, why wouldn't an institution work hard to find ways to expand these types of opportunities?

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