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The Great Skills Divide: A Review of the Literature

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Executive Summary

Discussions of Canada’s so-called “skills gap” have reached a fever pitch. Driven by conflicting reports and data, the conversation shows no signs of abating. On the one hand, economic indicators commonly used to identify gaps point to problems limited to only certain occupations (like health occupations) and certain provinces (like Alberta) rather than to a general skills crisis. On the other hand, employers continue to report a mismatch between the skills they need in their workplaces and those possessed by job seekers, and to voice concern that the postsecondary system is not graduating students with the skills they need.

This paper is the first of three on Canada’s skills gap. It outlines the conflicting views around the existence and extent of a divide between the skills postsecondary graduates possess and those employers want. In laying out the competing perspectives on this issue, the report identifies four distinct themes that have been conflated in policy debates, in turn hindering efforts to gain a clearer understanding of the skills gap in Canada. For example, in the eyes of some employers and commentators, the skills gap problem is one of too few high-skilled workers in the Canadian labour market. For others, it is a problem of weak essential or soft skills, such as working with others, oral communication and problem solving. Still others use the term “skills gap” to refer to what might better be described as an “experience gap” – a shortage of “work-ready” employees possessing those skills that are acquired through work experience. Commentary on the skills gap has tended to lump these different perspectives together and this has acted as an obstacle to a coherent narrative around skills in Canada.

This report suggests that these themes should be recognized as distinct from one another. By framing Canada’s skills gap in this way, we set the stage for the second and third papers of this series, which document the expectations of Canadian employers with regard to the skill levels of new graduate hires. In tackling the question of the skills gap at its interface – the initial point of contact between employers and new graduates in the advertisements and hiring processes for entry-level jobs – reports in this series provide new opportunities for groups on both the demand (employers) and supply (postsecondary) sides of the skills gap debate to strengthen alignment between the postsecondary sector and the Canadian labour market.

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Introduction

Canada's "skills gap" has come to dominate both headlines and policy debates. Employers and business representatives report a growing mismatch between the skills they need in employees and those possessed by job seekers. These concerns have fostered suggestions that the postsecondary system is not graduating students with the skills required by the labour market.

But not everyone is convinced. A growing chorus of voices questions whether or not such a gap actually exists in the Canadian economy. Nor is it clear when the skills gap is discussed that commentators have the same phenomenon in mind. Some consider the skills gap problem to result from a lack of postsecondary graduates to meet the impending demand for high-skilled workers, while others see it as a problem of students graduating with the wrong credentials for the labour market. Some suggest that Canadian students have the right credentials but not the basic essential skills needed by employers. Still others suggest that students have the right skills but lack the work experience employers demand.

This report is the first in a three-part series on the dynamics linking Canada's postsecondary system, labour market and skilled workforce. In this first paper, we address the conflicting views of Canada's skills gap, examining who is saying what and why. Taking a cue from Tyler Meredith's (2014) comment that Canada needs to "refine data collection to better reflect what is happening down below the 35,000 foot altitude perspective of the national labour market" (p. 65), the second report (*Bridging the Divide, Part I*) builds on the skills gap discussion with a content analysis of 316 Canadian job advertisements for entry-level positions for postsecondary graduates. The series concludes with the third report (*Bridging the Divide, Part II*), which reviews the findings of a follow-up survey of the employers who posted the 316 vacancies discussed in the second report, to better understand what skills employers are actually looking for (and saying they cannot find) and how they are articulating their demand for these skills. Over the course of this series, we hope to provide greater clarity to job seekers and employers navigating the job market, to postsecondary institutions tasked with developing Canada's skilled workforce and to policymakers working to ensure that labour markets operate as efficiently as possible.

Tracking the Current Discourse: Who is saying what about skills gaps

There has been a lot of discussion of skills gaps in Canada. However, there seems to be little agreement as to the basics – let alone the intricacies – of the issue: what constitutes a skills gap or a labour shortage, to what extent these problems plague Canada, and what (if anything) should we do about it?

What is actually meant by a "skills gap?" While often conflated with labour shortages, the two represent different phenomena. Labour shortages exist where there are not enough available workers in a given occupation to meet employer demand. In contrast, a skills gap exists where there is a gap between the skills that are understood by an employer to be necessary for a given occupation and the skills possessed by the job seeker. It is a problem posed by the quality of labour (Lefebvre, Simonova & Wang, 2012). In a skills gap scenario, an employee may be hired despite being either over- or under-qualified (having too many or too few skills) (Burleton, Gulati, McDonald & Scarfone, 2013).

Beyond semantics, there is little consensus as to whether or not "skills gap" is the right diagnosis for the current state of the Canadian labour market. On one side of the debate, Jason Kenney, current Minister of Employment and Social Development Canada (ESDC), has called the skills gap the "biggest economic challenge facing our country" (Kenney, 2013). The Association of Canadian Community Colleges (2013) has

suggested that certain sectors face “unprecedented” shortages of skilled employees. And the Canadian Manufacturers & Exporters points out that there were 268,000 unfilled positions in Canada by the end of 2012, even with unemployment at 7% for the general population and almost twice that for youth (Legault, 2013).

But others have expressed skepticism as to the existence of such a gap. Respected economist Don Drummond has stated that he has yet to find any credible evidence of a serious mismatch between skills and jobs and that he could not locate the data used by the Canadian government in its 2013 budget to support the existence of such a gap (Goar, 2013). Two major reports in 2013 also questioned the dominant skills gap narrative. The first report, released by TD Economics in November 2013, tested for skills shortages and mismatch by compiling a database of unemployment rates, wage rates and vacancy rates¹ for 140 occupations thought to be in excess supply or demand. While the report found “some evidence of mismatch” in specific occupations and provinces (particularly in Alberta as a result of its booming natural resources economy), it was muted in its assessment of the gaps, noting that vacancy rates and wage growth for a number of these occupations have not accelerated at the pace that would be anticipated for serious shortages (Burleton, Gulati, McDonald & Scarfone, 2013). The second report, released soon after by the Institute for Research on Public Policy, also expressed doubt that widespread skills shortages exist and/or can be anticipated, although author Cliff Halliwell did suggest that slower labour market growth is creating a new normal for the Canadian labour market (Halliwell, 2013).

Part of the confusion stems from the data. Ahead of the government’s February 2014 budget, Canada’s Department of Finance reported a steady increase in the share of available unfilled jobs (the vacancy rate) beginning in 2009, potentially indicative of a misalignment between the skills of the unemployed and those required by employers (Department of Finance, 2014). Shortly thereafter, Statistics Canada (2014) released data that contradicted the Department of Finance’s figures, finding instead that the national vacancy rate had fallen (from 1.5% to 1.3%) in the 12 months leading up to December 2013.²

A second – likely more intractable – reason why confusion persists is that while much of the traditional data (such as wage and vacancy rates) on labour shortages and skills gaps in Canada suggest that the problem has been overstated, Canadian employers sound alarms about skills deficits in their own operations. The Canadian Chamber of Commerce (2012) cites data compiled through consultations with its business members, including 18 roundtables and an employer survey with over 2,000 participants, in contending that:

The evidence is clear. The demographic shift resulting in retirements, a deepening shortfall of skilled workers and the growing mismatch between the skills needed and those available has evolved into a skilled crisis. The Canadian economy faces a deep structural problem. (p. 3)

At the provincial level, the Conference Board of Canada’s survey of 1,538 Ontario employers was used to conclude that the problem is widespread in Ontario, affecting major Ontario sectors – manufacturing; healthcare; professional, scientific and technical services; and financial industries – that make up almost 40% of employment in the province (Stuckey & Munro, 2013). The Conference Board calculates that this misalignment in skills may be costing the Ontario economy as much as \$23.4 billion in foregone gross domestic product (GDP) annually.

A more recent survey of 95 Canadian employers conducted by the Canadian Council of Chief Executives (CCCE, 2014) was somewhat more subdued in its assessment of skills gaps. Approximately half of the

¹ The idea here is that, if employers face real shortages, there will be a higher vacancy rate (more jobs going unfilled) and higher wages (because employers will have to offer more to attract qualified workers). If widespread labour shortages exist, a lower unemployment rate should also be observed.

² The methodology used by Finance Canada in particular has been heavily criticized, but these conflicting data have only added to the confusion on skills gaps.

companies surveyed indicated that a shortage of skilled workers was a moderate problem, while close to 30% said it was a small problem or not a problem at all. Only 10% of companies thought that a shortage of skilled workers was a big problem (CCCE, 2014). However, the perception that Canadian employers cannot find employees with the skills they need in their workplaces remains pervasive among employers and policymakers.

Digging Deeper

As evidenced by the preceding summary, a lot is being said about skills gaps in Canada but no cohesive story has emerged. One reason it is so difficult to make sense of the skills gap narrative is that current debates on the subject tend to conflate a number of different concerns into one discussion, even though they warrant separate examination. In the sections that follow, this paper will attempt to unpack the current narrative on skills gap in Canada by examining four distinct – and sometimes conflicting – claims commonly heard in the media and observed in the literature:

- Claim 1: Canada will not have enough postsecondary graduates to meet future demand for high-skilled³ workers;
- Claim 2: Canadian postsecondary students are graduating with the wrong credentials to meet current and future labour market demands;
- Claim 3: Canadian students have the right credentials but lack the essential skills employers require;
- Claim 4: Students have the right skills but lack work experience.

Claim 1: Canada will not have enough postsecondary graduates to meet future demand for high-skilled workers

Several recent reports have asked whether or not Canadians will possess the postsecondary education and/or training they need to meet future labour market demand. One report that has been particularly influential in addressing this question is Rick Miner's (2010) *People Without Jobs, Jobs Without People*. In this report, Miner argues that Canada – and Ontario more specifically – faces a looming skills and labour crisis. This crisis has two parts. On the one hand, Canada will experience generalized labour shortages as baby boomers retire and the proportion of the population in its prime working years (ages 15 to 64) declines. On the other hand, changing labour market requirements will mean that the proportion of the labour force requiring some form of postsecondary education needs to increase dramatically. Postsecondary attainment rates for the 25 to 34 age group currently hover around 66.6%, but Miner predicts that 77% of jobs in the Ontario workforce will require postsecondary credentials by 2031.

Miner uses several different Canadian and American estimates to come to the conclusion that the Ontario labour market is staring down an imminent skills crisis. These estimates, which forecast the percentage of jobs that will require postsecondary education and/or training equivalent in the future, are: ESDC's (at the time HRSDC) (2007) "conservative" estimate of close to 65% of new jobs created in the next five years; British Columbia's Ministry of Skills, Training and Education's (1997) estimate of 75% (time period not specified in report); British Columbia's Ministry of Advanced Education and Labour Market Development (2009) updated estimate of 76.2%; and Holzer and Lerman's (2007) estimate of 78% between 2004 and 2014 for the American labour market. Miner also includes the U.S.-based Lumina Foundation's forecast that the US will face a shortage of 16 million postsecondary educated workers by 2025.

³ Higher-skilled occupations require education or formal training that includes: university education, college education, vocational education and/or apprenticeship training (ESDC, 2014).

What is important for Miner is that, “while these studies vary in the details of their analysis, they all agree on the nature and direction of the changes that are occurring and can be expected to continue and accelerate” (p. 8). As a result, his own projections of the proportion of new jobs that will require skilled workers use the most conservative of his cited estimates – ESDC’s estimate of 65% – as a starting point for 2006. Since “all the other predictions are higher” (p. 9), Miner assumes that this rate will increase to 70% by 2011 and by 0.5% each year thereafter. Miner thus concludes that by 2031 the proportion of new jobs requiring skilled workers will reach 80%. If postsecondary attainment rates for the 25 to 34 age group remain at the current level (66.6%) until 2031, 77.1% of all jobs (not just new jobs) at that time will require skilled workers.

One concern with Miner’s projections is that they rely on what appears to be a cherry-picked sampling of Canadian and U.S. estimates that pre-support his ultimate conclusion. Indeed, Miner’s projections highlight a problem that reappears throughout the broader literature on skills gaps: labour market forecasting is incredibly difficult and projections are heavily dependent on the assumptions upon which they are built. Usher (2013) makes this point, examining the assumptions underlying Miner’s labour shortage projections.⁴ In forecasting that Canada will face large-scale labour shortages by 2031, Miner assumes constant labour market participation rates until 2031. However, Usher points out that the employment rate has actually been increasing by 1% per year since 2000, since older workers are staying in the workforce longer than expected. If instead the assumption is made that the size of the labour force will continue to increase even marginally (rather than staying constant), Miner’s projected shortage of workers in Ontario disappears. As Usher concludes, “the whole ‘looming labour shortage’ meme depends heavily on initial assumptions.”

A second assumption implicit in Miner’s projections is that requirements for formal schooling will continue to increase as the labour market becomes increasingly knowledge-based. However, while the view that the evolution of Canada’s knowledge-based economy will heighten demand for high-skilled labour is commonly held (see, for example, Cheung, Guillemette & Mobasher-Fard, 2012; Finnie & Usher, 2007; Conference Board of Canada, 2007), it is based on speculation (Halliwell, 2013). Halliwell cites evidence from Beaudry, Green and Sand (2013) for the U.S. labour market that suggests that, following two decades of growth in demand for high-skilled workers, demand for cognitive skills associated with higher education has been declining since the “tech bust” in 2000. Halliwell argues that a similar trajectory could emerge in Canada as well.

The Canadian Occupations Projection System (COPS)

Miner’s report has attracted widespread media attention, but the Canadian government actually produces its own projections on labour market trends. This is done by ESDC (formerly HRSDC), which uses its Canadian Occupational Projection System (COPS) to predict imbalances between labour supply and demand. While Miner bases his own projections on previous forecasts made by various American and Canadian groups – including ESDC’s own projections – COPS is a much more comprehensive modeling system. Using a variety of data sets⁵, COPS models the components of labour demand and supply individually.

COPS forecasts job openings and job seekers by broad skill level – that is, the level of skill required for the job (university education, college education, high school, on-the job training or management) and the level of skill possessed by the job seeker. This projection targets the same question asked in Miner’s report: will we have workers with the broad skills (education or training) to meet labour market demand? But COPS is more measured than Miner in its forecasts. According to COPS 2011 projections, 69.8% of jobs created by economic expansion over the next 10 years are expected to be in occupations generally requiring postsecondary education (or in management). This is lower than the number forecasted by Miner, who puts it

⁴ Miner projects both labour shortages and skills shortages in his report, although this paper focuses on the skills gaps projections.

⁵ These data sets are: Labour Force Survey (LFS), National Graduate Survey (NGS), Post-secondary Student Information System (PSIS), Youth in Transition Survey, Canadian Census, Annual Demographic Statistics and Longitudinal Administrative Data (LAD).

at 75% by 2021. COPS also projects that 71.1% of school leavers in the next 10 years will have the postsecondary education required to fill these jobs. As a result, in contrast to Miner, ESDC reports that “no major imbalances by skill level are projected over the next decade” (p. 7).

More Evidence on whether or not we need more Postsecondary Graduates

Although Miner’s advocacy for greater postsecondary enrolment has garnered headlines, Canada has already witnessed a rapid expansion of postsecondary education (Clark, Trick & Van Loon, 2011). In fact, a major concern has been whether or not Canada is graduating too many postsecondary students, not whether or not it has enough graduates.

Evidence suggests that Canada has done a generally good job in supplying the labour market with postsecondary graduates in the past decades (Halliwell, 2013; Drewes, 2010; Boothby & Drewes, 2010). For example, looking at 2011 Canadian National Household Survey (NHS) data, Burleton et al. (2013) point out that unemployment rates are significantly lower for individuals with a postsecondary education. In 2011, unemployment rates for the 25 to 29 year old cohort with some form of postsecondary education ranged from 6 to 8% (depending on education levels) and dip to 5.5% for individuals who received their bachelor’s degree in Canada, compared to 10.4% for individuals in this age group with only a high school diploma.

Others point to the continued existence of a “wage premium” for postsecondary graduates. The idea here is that, if employers are paying more for workers with degrees than for ones without, it is because they believe that postsecondary educated workers possess greater skills and that these skills are required for the positions employers are seeking to fill. Put differently, if there were too many postsecondary graduates, the labour market would respond and the wage advantage of postsecondary graduates over their high school-educated counterparts would begin to disappear (Carnevale, Smith & Strohl, 2010).

However, this has not been the case. In the past 30 years, the positive relationship between earnings and level of education has frequently been re-established (Walters, 2004). Most recently, a Statistics Canada report by Marc Frenette found that the earnings premium associated with a bachelor’s degree over a 20-year period was an average of \$728,000 for men and \$442,000 for women. Men with college certificates had an average premium of \$248,000, while women with the same credential averaged a premium of \$180,000 (Frenette, 2014).⁶ Torben Drewes (2010) looked at the Ontario context specifically, using annual earnings estimates from the National Graduates Surveys and Census data for graduates from 1986 to 2005 to find that the earnings premiums to postsecondary education continue to grow moderately. This is an important conclusion given the influx of students into the system in the past decade.

Claim 2: Canadian postsecondary students are graduating with the wrong credentials to meet current and future labour market demands

Even if job seekers have the right education and training to meet job opening needs at the aggregate level, skills shortages may still exist in specific occupations. Indeed, the conclusion that skills shortages are largely confined to specific occupations in Canada has gained traction in the media and literature (Wright, 2014; Burleton et al., 2013; Grant, 2013; Halliwell, 2013; Mendelson & Zon, 2013). Yet there is significant disagreement as to which occupations face the most serious shortages. In March 2013, a member of the federal government made waves with his comment that Canada has “too many kids getting BAs and not enough welders” (Weston, 2013). This narrative has also become popular in the media (Turpin, 2014; Watts-Rynard, 2014; Lynch 2013; Sorensen, 2013).

⁶ The difference in average wage premiums for men and women is troubling, but a discussion of this issue is outside the scope of this paper.

It is worth examining the evidence in support of this view. There is some evidence to support the assessment that Canada’s primary concern should be with labour shortages in skilled trades. For example, ManpowerGroup’s 2013 Talent Shortage Survey, which surveyed nearly 38,000 globally (and 10,000 in the Americas⁷), found that both Canadian and global employers ranked skilled trades as the most difficult positions to fill. According to ManpowerGroup, the 10 jobs Canadian employers have the most difficulty filling are:

Table 1: ManPowerGroup’s List of Occupations Employers are Having Difficulty Filling

Top 10 Jobs Canadian Employers are Having Difficulty Filling	
1.	Skilled trades
2.	Engineers
3.	Management/Executive
4.	Sales representatives
5.	Technicians
6.	Drivers
7.	Accounting & finance staff
8.	IT staff
9.	Teachers
10.	Labourers

Source: ManpowerGroup Talent Shortage Survey (2013)

However, it is important to be cautious when drawing conclusions from employer surveys. While they can be useful in assessing “the actual issues and real needs of... employers” (Stuckey & Munro, 2013, p. ii), they are also subjective surveys and there is incentive for employers to overstate labour market imbalances in order to influence policymaking. Unsurprisingly, then, the tendency of employer surveys to overestimate labour market shortages has been noted (Lefebvre, Simonova & Wang, 2012).

In a 2012 report prepared for CIBC, Benjamin Tal argues that, instead of relying on what businesses are saying, a better approach to assessing skilled labour shortages is to look at what they are doing. This means examining whether rapidly rising wages and low or falling unemployment rates are observable in occupations where employers say they are facing skills shortages. Using this approach, Tal identified 25 occupations – constituting 21% of the Canadian labour market – showing signs of skilled labour shortages. These 25 occupations had an average unemployment rate of just above 1%, with wages increasing at an average rate of 3.9% annually, twice as fast as in the broader economy. Using similar methods, Tal also identified 20 occupations with a surplus of workers. In 2012, these jobs constituted 16% of total unemployment and experienced zero wage growth:

⁷ The survey does not specify how many of these employers were Canadian.

Table 2: Tal's Occupations Showing Signs of Skills Shortages and Labour Surplus

25 Occupations Showing Signs of Skills Shortages	20 Occupations Showing Signs of Labour Surplus
<p>Managers in Engineering, Architecture, Science and Information Systems</p> <p>Managers in Health, Education, Social and Community Services</p> <p>Managers in Construction and Transportation</p> <p>Auditors, Accountants & Investment Professionals</p> <p>Human Resources and Business Service Professionals</p> <p>Professional Occupations in Natural and Applied Sciences</p> <p>Physical Science Professionals</p> <p>Life Science Professionals</p> <p>Civil, Mechanical, Electrical and Chemical Engineers</p> <p>Other Engineers</p> <p>Professional Occupations in Health</p> <p>Physicians, Dentists and Veterinarians</p> <p>Optometrists, Chiropractors, Other Health Diagnosing and Treating Professionals</p> <p>Pharmacists, Dieticians and Nutritionists</p> <p>Therapy and Assessment Professionals</p> <p>Nurse Supervisors and Registered Nurses</p> <p>Technical & Related Occupations in Health</p> <p>Medical Technologists and Technicians (except Dental Health)</p> <p>Technical Occupations in Dental Health Care</p> <p>Other Technical Occupations in Health Care (except Dental)</p> <p>Psychologists, Social Workers, Counsellors, Clergy and Probation Officers</p> <p>Supervisors, Mining, Oil and Gas</p> <p>Underground Miners, Oil and Gas Drillers and Related Workers</p> <p>Supervisors in Manufacturing</p> <p>Supervisors, Processing Occupations</p>	<p>Managers in manufacturing and Utilities</p> <p>Clerical Supervisors</p> <p>Clerical Occupations</p> <p>Clerical Occupations, General Office Skills</p> <p>Office Equipment Operators</p> <p>Finance and Insurance Clerks</p> <p>Mail & Message Distribution Occupations</p> <p>Secondary/Elementary Teachers and Counsellors</p> <p>Sales and Service Supervisors</p> <p>Cashiers</p> <p>Occupations in Food and Beverage Services</p> <p>Tour and Recreational Guides and Amusement Occupations</p> <p>Other Attendants in Travel, Accommodation and Recreation</p> <p>Technical Occupations in Personal Service</p> <p>Other Occupations in Personal Service</p> <p>Butchers and Bakers</p> <p>Upholsterers, Tailors, Shoe Repairers, Jewellers and Related Occupations</p> <p>Fishing Vessel Masters, Skippers and Fishermen/women</p> <p>Machine Operators and Related Workers in Metal and Mineral Products Processing</p> <p>Machine Operators and Related Workers in Pulp and Paper Processing</p>

Source: Tal (2012)

ESDC's COPS similarly projects imbalances by occupation and has generated a list that is broadly similar to Tal's. While stressing that job seekers and job vacancies are in balance at the aggregate level, COPS found imbalances in specific occupations accounting for 15% of 2010 employment (with recent labour market conditions and projections indicating more job openings than job seekers). This number is not too far off Tal's

projection of 21%, which uses 2012 (not 2010) employment numbers. Conversely, occupations with a surplus outlook – with more job seekers than job openings – accounted for 25% of 2010 employment. With Tal forecasting that occupations constituting 16% of the labour market will be in shortage, there is thus a greater gap between COPS' and Tal's projections for occupations facing shortages than surpluses. From these projections, COPS produced the lists of occupations in surplus and shortage shown in Table 3.

Table 3: COPS' Occupations Projected to Face Shortages or Surpluses

Occupation Type	COPS Occupations in Shortage	COPS Occupations in Surplus
Business, Finance and Administration	Human Resources and Business Service Professionals; Administrative and Regulatory Occupations	Managers in Communication; Secretaries, Recorders and Transcriptionists; Clerical Occupations, General Office Skills; Office Equipment Operators; Library, Correspondence and Related Information Clerks; Recording, Scheduling and Distributing Occupations
Natural and Applied Sciences and Related	Other Engineers; Architects, Urban Planners and Land Surveyors	Computer and Information Systems Professionals; Technical Occupations in Physical Sciences
Health Occupations	Managers in Health, Education, Social and Community Services; Physicians, Dentists and Veterinarians; Optometrists, Chiropractors and Other Health Diagnosing and Treating Professionals; Therapy and Assessment Professionals; Nurse Supervisors and Registered Nurses; Medical Technologists and Technicians; Assisting Occupations in Support of Health Services	
Social Science, Education, Government Service and Religion	Managers in Health, Education, Social and Community Services; Judges, Lawyers and Quebec Notaries; College and Other Vocational Instructors; Policy and Program Officers; Researchers and Consultants	
Sales and Service	Managers in Protective Services; Insurance and Real Estates Sales Occupations and Buyers; Police Officers and Firefighters;	Chefs and Cooks; Retail Salespersons; Occupations in Travel and Accommodations; Occupations in Food and Beverage Service; Cashiers; Other Sales and Related Occupations; Food Counter Attendants, Kitchen Helpers

Occupation Type	COPS Occupations in Shortage	COPS Occupations in Surplus
	Other Occupations in Protective Services	and Related Occupations; Security Guards and Related Occupations; Other Elemental Service Occupations
Trades, Transport and Equipment operators and Related	Managers in Construction and Transportation	Facility Operation and Maintenance Managers; Machinists and Related Occupations; Metal Forming, Shaping and Erecting Trades; Carpenters and Cabinetmakers; Masonry and Plastering Trades; Other Construction Trades; Upholsters, Tailors, Shoe Repairers, Jewellers and Related Occupations; Heavy Equipment Operators; Other Transport Equipment Operators and Related Workers; Other Installers, Repairers and Services; Longshore Workers and Material Handlers; Trades Helpers and Labourers; Public Works and Other Labourers
Unique to Primary Industry	Supervisors Logging and Forestry; Supervisors Mining, Oil and Gas; Contractors, Operators and Supervisors in Agriculture, Horticulture and Aquaculture	Fishing Vessel Masters and Skippers; Logging and Forestry Workers; Agriculture and Horticulture Workers; Other Fishing and Trapping Occupations; Primary Production Labourers
Unique to Processing, Manufacturing, and Utilities		Supervisors, Assembly and Fabrication; Central Control and Process Operators in Manufacturing and Processing; Machine Operators and Related Workers in Metal and Mineral Products Processing; Machine Operators and Related Workers in Pulp and Paper Production; Machine Operators and Related Workers in Textile Processing; Machine Operators and Related Workers in Food, Beverage and Tobacco Processing; Printing Machine Operators and Related Occupations; Mechanical, Electrical and Electronics Assemblers; Other Assembly and Related Occupations; Machining, Metalworking, Woodworking and Related Machine Operators

Source: HRSCD 2011 COPS Reference Scenario

Because Tal and COPS both use ESDC’s National Occupational Classification (NOC) system, which describes and classifies all Canadian occupations, in generating their lists of occupations in shortage, the two lists can easily be compared. The NOC system is a useful tool that organizes over 40,000 job titles into 500 occupational group descriptions, including everything from “skilled sales and service occupations” to “lawyers and Quebec notaries” (ESDC, 2013). However, in comparing COPS’ and Tal’s lists, it is important to note that NOCs are updated every five years to account for the evolution of the Canadian labour market and that COPS uses NOC coding from 2006, while Tal’s report mainly uses 2011 NOC coding.⁸ Thus, some

⁸ The NOC is updated every five years to match the census cycles. This process involves both labour market research and consultation.

differences in grouping are evident across the two reports and minor reordering was required on our part to facilitate comparability.

Reordering the two lists by NOC yields the lists in Tables 4 and 5.

Table 4: Tal’s Occupations Showing Signs of Skill Shortages Sorted by Occupational Type (Using NOC 2011)

<p>Business, Finance and Administrative Occupations</p>	<p>Natural and Applied Sciences and Related Occupations</p>
<ul style="list-style-type: none"> • Auditors, Accountants and Investment Professionals (NOC 111) • Human Resources and Business Service Professionals (NOC 112) 	<ul style="list-style-type: none"> • Managers in Engineering, Architecture, Science and Information System (NOC 021) • Physical Science Professionals (NOC 211) • Life Science Professionals (NOC 212) • Civil, Mechanical, Electrical and Chemical Engineers (NOC 213) • Other Engineers (NOC 214)
<p>Health Occupations</p>	<p>Occupations in Education, Law and Social, Community and Government Services</p>
<ul style="list-style-type: none"> • Managers in Health Care (NOC 031) • Physicians, Dentists, and Veterinarians (NOC 311) • Optometrists, Chiropractors, Other Health Diagnosing and Treating Professionals (NOC 312) • Pharmacists, Dietitians and Nutritionists (NOC 313) • Therapy & Assessment Professionals (NOC 314) • Nurse Supervisors and Registered Nurses (NOC 315) • Medical Technologists and Technicians (Except Dental Health) (NOC 321) • Technical Occupations in Dental Health Care (NOC 322) • Other Technical Occupations in Health Care (Except Dental Health) (NOC 323) 	<ul style="list-style-type: none"> • Managers in Education and Social and Community Services (NOC 042) • Psychologists, Social Workers, Counsellors, Clergy and Probation Officers (NOC 415)

<p>Trades, Transport and Equipment Operators and Related Occupations</p>	<p>Natural Resources, Agriculture and Related Production Occupations</p>
<ul style="list-style-type: none"> Managers in Construction and Transportation (NOC 071) 	<ul style="list-style-type: none"> Supervisor, Mining, Oil and Gas Drillers and Related Workers (NOC 823) Underground Miners, Oil and Gas Drillers and Related Workers (NOC 823)
<p>Occupations in Manufacturing and Utilities</p>	
<ul style="list-style-type: none"> Supervisors in Manufacturing (NOC 921) Supervisors, Processing Occupations (NOC 921) 	

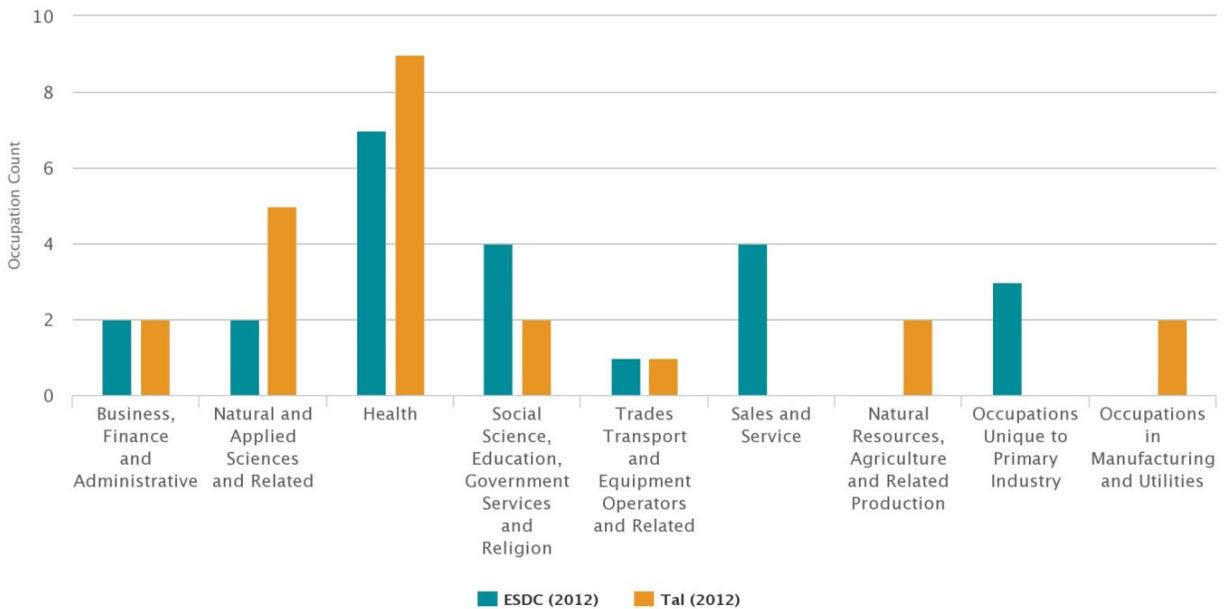
Table 5: COPS' Occupations Projected to be in Shortage Sorted by Occupational Type (Using NOC 2006)

<p>Business, Finance and Administrative Occupations</p>	<p>Natural and Applied Sciences and Related Occupations</p>
<ul style="list-style-type: none"> Human Resources and Business Service Professionals (NOC 112) Administrative and Regulatory Occupations (NOC 122) 	<ul style="list-style-type: none"> Other Engineers (NOC 214) Architects, Urban Planners and Land Surveyors (NOC 215)
<p>Health Occupations</p>	<p>Occupations in Social Science, Education, Government Services and Religion</p>
<ul style="list-style-type: none"> Managers in Health Care, Education, Social and Community Services (NOC 031) Physicians, Dentists, and Veterinarians (NOC 311) Optometrists, Chiropractors, Other Health Diagnosing and Treating Professionals (NOC 312) Therapy and Assessment Professionals (NOC 314) Nurse Supervisors and Registered Nurses (NOC 315) Medical Technologists and Technicians (NOC 321) Assisting Occupations in Support and Health Services (NOC 341) 	<ul style="list-style-type: none"> Managers in Health, Education, Social and Community Services (NOC 041) Judges, Lawyers and Quebec Notaries (NOC 411) Colleges and Other Vocational Instructors (NOC 413) Policy and Program Officers, Researchers and Consultants (NOC 416)

Sales and Service Occupations	Trades, Transport and Equipment Operators and Related Occupations
<ul style="list-style-type: none"> Managers in Protective Services (NOC 064) Insurance and Real Estate Sales Occupations and Buyers (NOC 623) Police Officers and Firefighters (NOC 626) Other Occupations in Protective Services (NOC 646) 	<ul style="list-style-type: none"> Managers in Construction and Transportation (NOC 071)
Occupations Unique to Primary Industry	
<ul style="list-style-type: none"> Supervisors in Logging and Forestry (NOC 821) Supervisors in Mining, Oil and Gas (NOC 822) Contractors, Operators and Supervisors in Agriculture, Horticulture and Aquaculture (NOC 825) 	

The first observation to be made is that, at the occupational level, the two lists agree on where the shortages are located approximately half of the time. The area with the most agreement is health occupations. On both lists, health occupations have the highest number of individual NOCs in shortage, accounting for close to one-third of all jobs on each list.

Figure 1: Number of Occupations Predicted to Experience Shortages by Occupational Type



A second observation from both Tal and COPS projections is that almost all of the occupations that are expected to face labour shortages are in high-skilled occupations that require postsecondary education. Jobs that usually require a university bachelor's, master's or doctoral degree face the most significant shortages and account for close to one-half of the jobs listed by both Tal and COPS, with 10 of 20 occupations listed by COPS and 12 of the 19 occupations listed by Tal falling into this category.⁹ Almost all of the remaining occupations on both lists are occupations that usually require college, vocational education or apprenticeship training. This grouping accounts for seven occupations on both lists.

Table 6: Occupations in Shortage (Excluding Management) by Skill Level Typically Required

Skill Level	Tal (2012)	COPS (2012)
<p>University Education (NOC 2nd digit 0 or 1)</p>	<ol style="list-style-type: none"> 1. Auditors, Accountants and Investment Professionals 2. Human Resources and Business Service Professionals 3. Physical Science Professionals 4. Life Science Professionals 5. Civil, Mechanical, Electrical and Chemical Engineers 6. Other Engineers 7. Physicians, Dentists and Veterinarians 8. Optometrists, Chiropractors, Other Health Diagnosing and Treating Professionals 9. Pharmacists, Dietitians and Nutritionists 10. Therapy and Assessment Professionals 11. Nurse Supervisors and Registered Nurses 12. Psychologists, Social Workers, Counsellors, Clergy and Probation Officers 	<ol style="list-style-type: none"> 1. Human Resources and Business Service Professionals 2. Other Engineers 3. Architects, Urban Planners and Land Surveyors 4. Physicians, Dentists and Veterinarians 5. Optometrists, Chiropractors, Other Health Diagnosing and Treating Professionals 6. Therapy and Assessment Professionals 7. Nurse Supervisors and Registered Nurses 8. Judges, Lawyers and Quebec Notaries 9. Colleges and Other Vocational Instructors 10. Policy and Program Officers, Researchers and Consultants
<p>College, Vocational Education or Apprenticeship Training (NOC 2nd digit 0 or 1)</p>	<ol style="list-style-type: none"> 1. Medical Technologists and Technicians (except Dental Health) 2. Technical Occupations in Dental Health Care 3. Other Technical Occupations in Health Care (Except Dental Health) 4. Supervisors, Mining, Oil and Gas Drillers and Related Workers 5. Underground Miners, Oil and Gas Drillers and Related Workers 6. Supervisors in Manufacturing 7. Supervisors, Processing Occupations 	<ol style="list-style-type: none"> 1. Administrative and Regulatory Occupations 2. Medical Technologists and Technicians 3. Insurance, Real Estate Sales Occupations and Buyers 4. Police Officers and Firefighters 5. Supervisors in Logging and Forestry 6. Supervisors in Mining, Oil and Gas 7. Contractors, Operators and Supervisors in Agriculture, Horticulture and Aquaculture

⁹ Note that these numbers exclude management positions (accounting for three occupations in shortage on each list) because COPS does not classify management positions by skill level.

Skill Level	Tal (2012)	COPS (2012)
Secondary School and/or Occupation-Specific Training (NOC 2 nd digit 0 or 1)	None	1. Assisting Occupations in Support and Health Services 2. Other Occupations in Protective Services
On-the-job Training (NOC 2 nd digit 0 or 1)	None	None

By disaggregating this grouping further, it is possible to glean some insight into whether or not current narratives of a shortage of skilled tradespeople in Canada hold true. Both COPS' and Tal's lists suggest that this common claim is not supported by the evidence. In fact, although the pathway to entry for various occupations varies by province, Alex Usher (2013a) estimates that only five or so of the occupations listed by Tal require apprenticeships, a number that correlates approximately with the COPS list. It is thus difficult to draw support for the conclusion that Canada faces its largest shortages in skilled trades from these lists.

Both lists do, however, support the conclusion that there is weak demand in low-skilled occupations (not requiring postsecondary education). Secondary school and/or on-the-job training is a sufficient level of educational attainment for only two of the occupations listed by COPS and none of those listed by Tal. Unsurprisingly, then, both lists of occupations projected to be in a labour surplus position are also dominated by low-skilled occupations (Tables 2 and 3).

More evidence on whether or not Canadians have the Right Credentials

With both COPS and Tal's lists of occupational shortages heavily dominated by high-skill occupations, one possible conclusion is that Canada needs to ramp up postsecondary attainment. An alternative possible implication is that Canada has enough postsecondary graduates but in the wrong fields; that is, too many liberal arts and humanities graduates and too few STEM (science, technology, engineering and mathematics) graduates (Meredith, 2014). This, it is argued, has led to a skills mismatch, with liberal arts and humanities graduates ending up in low-skilled employment for which they are over-qualified, while high-skilled jobs go unfilled (Burleton et al., 2013).

Some support for this view can be drawn from the observation that occupations in STEM fields are heavily represented on both COPS and Tal's lists. A quick – and by no means comprehensive – scan of the two lists shows that somewhere between one-half to one-third of all occupations listed (with Tal's report on the higher end) require either a postsecondary STEM degree, or a high level of proficiency in one of these fields.

If high-skilled STEM jobs are going unfilled, as COPS and Tal show, does it also hold that there are a growing number of over-qualified PSE graduates in Canadian labour markets, and specifically graduates from liberal arts and humanities fields? Yes and no. Over-qualification certainly exists among young Canadian university graduates. A recent report by Uppal and LaRoche-Côté (2014) for Statistics Canada found that 18% of university graduates aged 25 to 34¹⁰ worked in occupations usually requiring a high school education or less, while 40% worked in occupations usually requiring a college-level education or less. However, these figures have remained essentially unchanged for the last two decades.

¹⁰ This excludes individuals working in management positions because ESDC classifies these positions differently.

Nevertheless, over-qualification does vary significantly by field of study. Uppal and LaRochelle-Côté found that three areas of study – business, management and public administration; social and behavioural sciences and law; and humanities – accounted for 60% of all overqualified individuals. The highest rates of over-qualification were found among humanities graduates (with one-third of these graduates working in occupations usually requiring high school or less), while the lowest rates were found in education; architecture, engineering and related technologies; and health and related areas (with a rate of over-qualification between 9 and 13%). These findings also align with an earlier study by Li, Gervais and Duval (2006), which found that graduates in the fields of arts, humanities and social sciences were most likely to be over-qualified (25.6% were over-qualified in 2001), compared to only 15.5% for sciences and health graduates.

Further evidence on over-qualification by field of study has been drawn from wage data. When measured using earnings, Drewes (2010) found that the variation in earnings across fields of study in Ontario is increasing, indicating there is a lag between enrolment patterns by field of study and labour market requirements. Specifically, growth in earnings for graduates in engineering, math and computer science has outpaced wage growth for other postsecondary graduates, suggesting that demand for graduates in these fields is greater than supply. At the same time, however, there is evidence to support that the gap in earnings between liberal arts or humanities graduates and other graduates may diminish over time (Adamuti-Trache, Hawkey, Scheutze & Glickman, 2006; Giles & Drewes, 2001). This aligns with a body of literature arguing that the skills required in rapidly changing labour market are difficult to predict, and liberal arts graduates possess the skills needed to adapt as the market evolves over time (Brisbois, Orton & Saunders, 2008; Axelrod, Anisef & Lin, 2001; Giles & Drewes, 2001).

Claim 3: Canadian students have the right credentials but lack the essential skills employers require

What has emerged thus far from this literature review is that the evidence on skills shortages – when measured in terms of the requirements for formal credentials – is mixed at best. However, another story being told is that although potential employees may have the proper credentials, they often lack the right essential or “soft” skills. Essential skills are defined as those skills and competencies that provide the groundwork for learning all other skills and include such abilities as literacy, numeracy and working with others (Stuckey & Munro, 2013). “Soft” skills are a subset of essential skills, referring more narrowly to personal attributes like determination, confidence and persistence. They are also sometimes more accurately described as “transferable life skills”, because they are seen as being transferable to and necessary for success in any job (Weingarten, 2014). These “soft” skills stand in contrast to “hard” skills, which are defined as “technical expertise or content knowledge” (Sattler & Peters, 2012). It should be noted that this report uses the terms “soft” or “hard” skills when referencing literature or employer surveys that themselves use this term. In all other cases, we use the term “essential skills” as we are referring to this broader set of foundational skills.

Because it is difficult to predict what occupations will be important in the future, essential skills are seen as fundamental to ensuring that workers can adjust to workplace change. Worryingly, it has become increasingly common to hear anecdotes of the engineering or IT firm which, despite the availability of trained engineers or technicians, cannot find workers with the right cognitive and communication skills to work in the field (Finnie, 2013; Stuckey & Munro, 2013).

Anecdotal evidence aside, it is very difficult to measure an essential or soft skills gap. This is one reason why much of the literature, including Miner’s report or ESDC’s COPS, uses education as a proxy for “skills.” Degree completion can be measured but essential skills are a much less tangible concept and difficult to quantify. Moreover, a variety of terms for various competencies are often used interchangeably, and terms like “essential” or “soft” skills have come to be applied to an unhelpfully wide range of behaviours (Jackson, 2009).

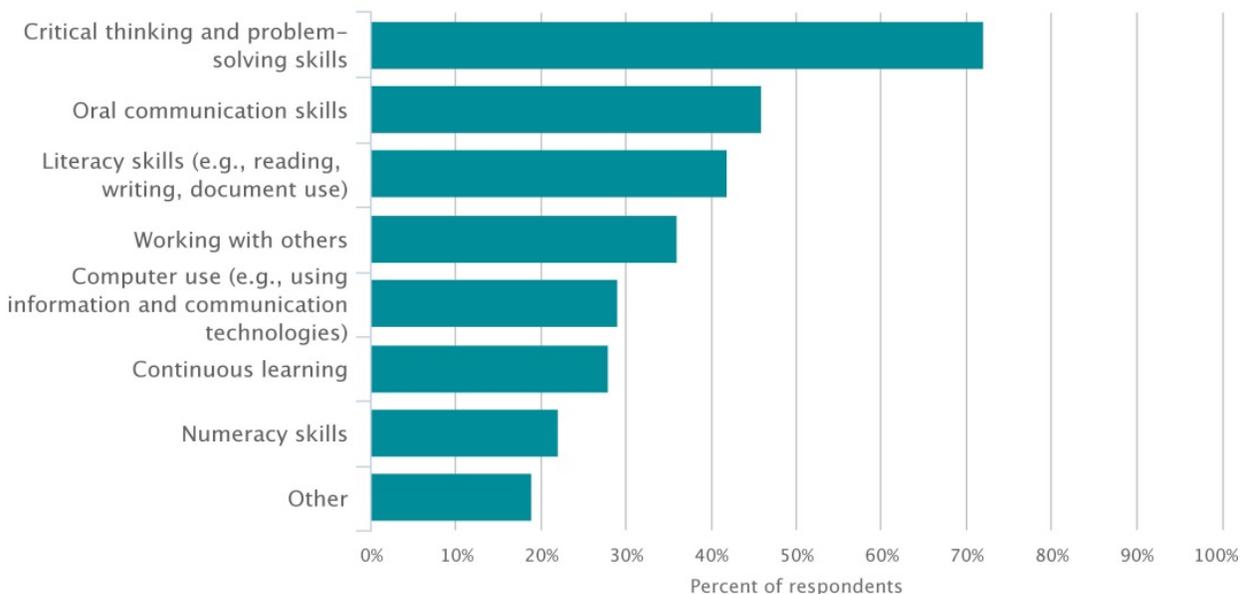
Employer Surveys

Those attempts that have been made to quantify the skills gap come mostly from employer surveys that ask employers to assess both the credentials and skillsets of the pool of workers applying for jobs.

What constitutes an essential skill varies across surveys. The Canadian Chamber of Commerce (2012) uses ESDC’s list of nine basic skills: reading, writing, document use, numeracy, thinking skills, oral communication, computer use, teamwork and continuous learning. The Chamber found significant deficiencies in these skills across provinces. It also shares the concerns of employers familiar with programs like Ontario’s Second Career Program, which retrain unemployed workers, that too many participating workers lack the essential skills required to be effectively retrained.

The Conference Board of Canada’s (2013) report paints an even more dire picture for Ontario. Of the more than 1,500 Ontario employers surveyed, over 70% said that their workers have insufficient critical thinking and problem-solving skills, 46% said that they lack oral communication skills, and 42% said that workers are deficient in literacy skills (Figure 2). Employers were least likely to cite numeracy skills as being deficient, but even here 22% of employers said that they see gaps.

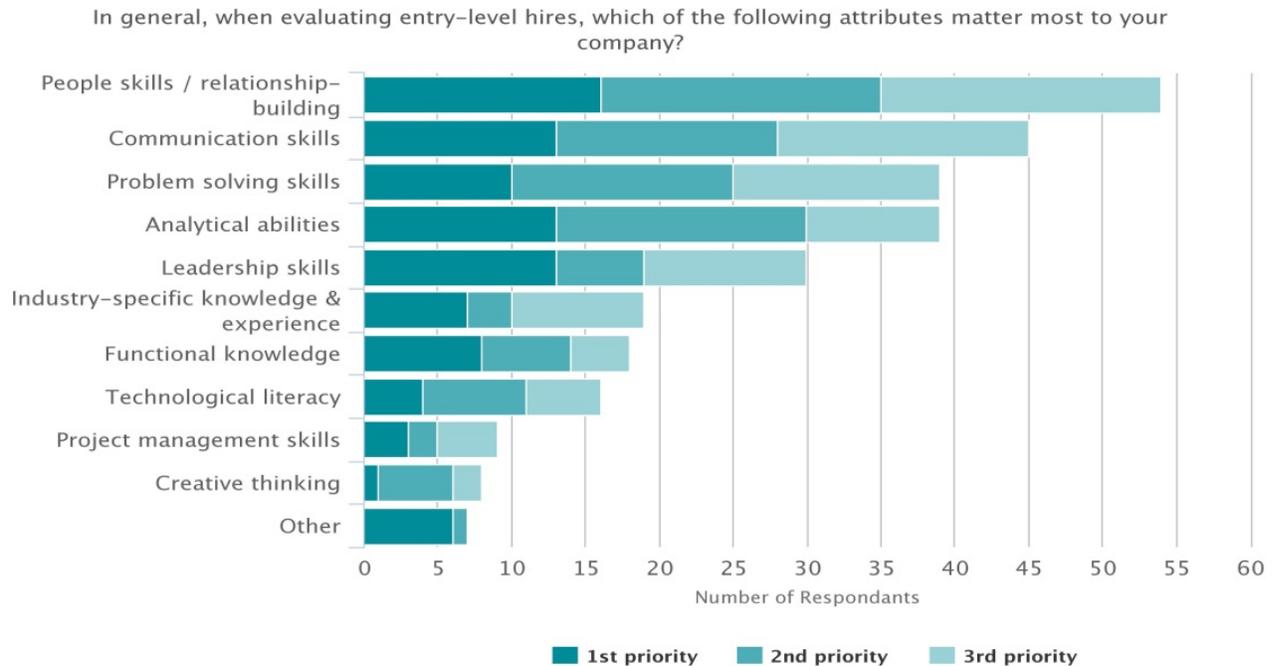
Figure 2: The Conference Board of Canada’s Essential Skills Gaps



Source: The Conference Board of Canada (2013)

The Canadian Council of Chief Executives’ (2014) employer survey (n=95) is of particular interest to this report because it asked employers what skills they look for in entry-level hires specifically. The CCCE survey found that employers prioritize soft skills over hard skills when hiring. According to employers, the skills they look for most in job candidates for entry-level positions are people skills/relationship building, communication skills and problem solving skills (Figure 3).

Figure 3: The Canadian Council of Chief Executives’ Attributes that Matter Most to Employers When Hiring

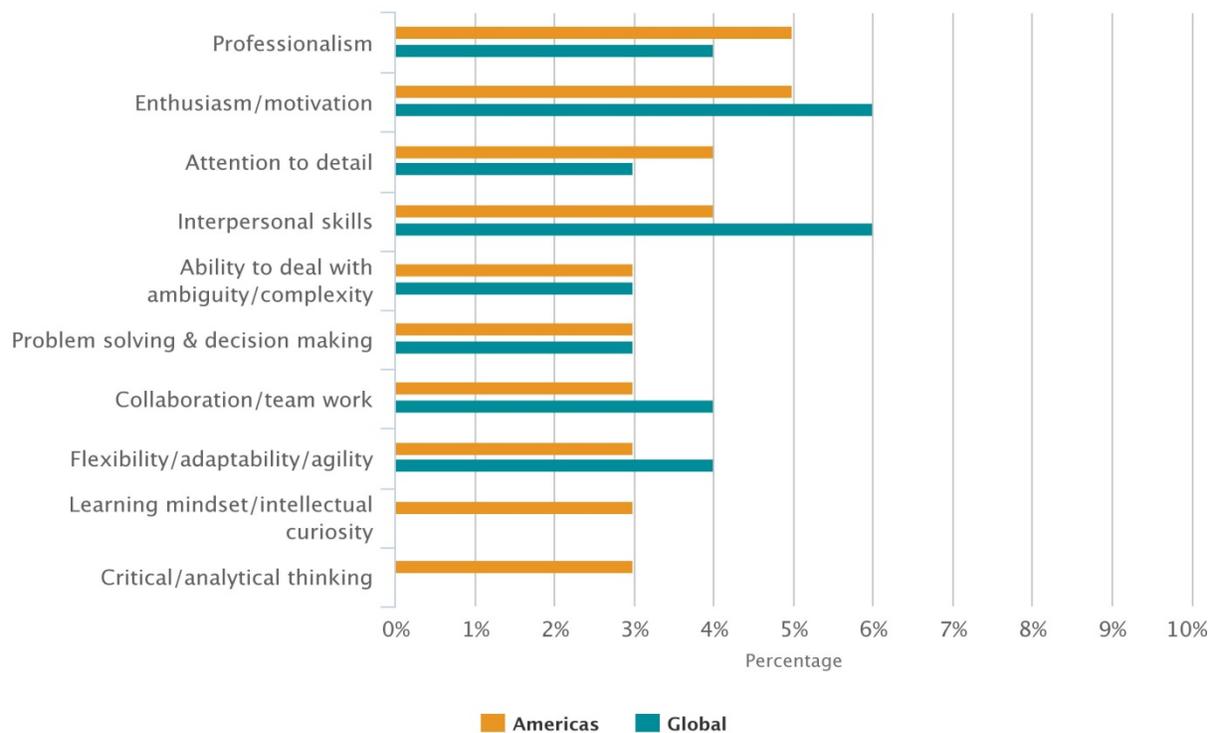


Source: Canadian Council of Chief Executives (CCCE, 2014)

In its 2012¹¹ Talent Shortage Survey, ManpowerGroup examined soft skills deficiencies globally. Interestingly, only 15% of employers surveyed in the Americas (n=10,232) cited a lack of employability/soft skills as a reason behind their inability to fill jobs. In contrast with the CCCE’s survey, many more employers suggested that they lack applicants (36%) or that they lack applicants with the right “hard skills” or credentials (36%). Of the employers that did indicate that soft skills were a concern, the employability skills in Figure 4 were most frequently said to be lacking.

¹¹ Although results from the 2013 survey are now available, this question was only included in 2012.

Figure 4: ManpowerGroup’s Employability/Soft Skills Deficiencies (Americas and Global)



Source: ManpowerGroup Talent Shortage Survey (2012)

Thus, even among the relatively small group of employers concerned with gaps in employability skills according to the ManpowerGroup, there is little agreement as to where the deficiencies are.

OECD Surveys on Skills

Employer surveys are subjective and other sources try to assess workers’ skills more directly by measuring individual skills – notably literacy and numeracy – and using these as proxies. The Organisation for Economic Co-operation and Development (OECD) has taken the lead in attempting to quantify these skills. Since 2000, the OECD’s Program for International Student Assessment (PISA) has measured the extent to which youth aged 15 have the knowledge and skills they will need to participate fully in “modern society” (Knighton, Brochu & Gluszynski, 2010, p. 9). Canada has historically scored near the top of the pack on PISA. In the 2009 PISA survey of 65 countries, four countries outperformed Canadian youths in reading, six in science and seven in mathematics (Knighton, Brochu & Gluszynski, 2010). Canadian youths did however slip in the most recent 2012 PISA results, with five countries outperforming Canada in reading, seven in science and – most significantly – nine in math (Brochu, Deussing, Houme & Chuy, 2013).

OECD surveys also show that Canada’s performance falls further by the time youths join the working-age population (Halliwell, 2013). The OECD has now run three successive international comparative surveys aimed at measuring skillsets in the adult populations of participating countries. These surveys include the 1994 International Adult Literacy Survey (IALS), the 2003 International Adult Literacy and Skills Survey (IALSS), and the recently released 2012 Programme for International Assessment of Adult Competencies (PIAAC). Across the three surveys, the Canadian adult population converged around the middle on all three skills measured – literacy, numeracy and problem solving. Although an in-depth analysis of all three surveys

is beyond the scope of this paper, it is worth examining a few high-level findings from the most recent PIAAC survey (Statistics Canada, 2013):

- Canada scored at the OECD average for *literacy*. However, Canada has a higher proportion of its population than other participating countries at both the highest and lowest levels of literacy.
- Canada scored slightly below the OECD average for *numeracy*.
- Canada scored slightly above the OECD average for *problem solving in technology-rich environments* (which measures the skills required to operate in today's information age).

It is interesting to note the discrepancies between the essential skills as measured by employer surveys and as measured by PIAAC data. Notably, although PIAAC found the Canadian workforce to be most deficient in its numeracy skills, these skills are either infrequently or not cited altogether by employers in their assessment of their own workforce.

PIAAC results were only released in October of 2013, so major comparative analyses of PIAAC data with previous surveys have yet to be undertaken. However, economists Green and Riddell (2007; 2013) have looked extensively at the data on literacy provided by both the Canadian component of the 2003 IALS and the 1994 IALSS, examining how the skills of Canadian adults have evolved between the two surveys. A finding that emerges from Green and Riddell's comparison of the two surveys is that younger Canadian cohorts have lower levels of literacy than did their older counterparts at the same age, a gap that is particularly pronounced for highly educated individuals. Given the high levels of unemployment amongst Canadian youth, this finding is cause for concern.

Claim 4: Students have the right skills but lack work experience

When recent postsecondary graduates are asked about their experience searching for their first job, they often tell a different story altogether. They feel that they have the skills required by employers; what they lack is the work experience. Increasingly, even when searching for an entry-level job, they find that most if not all of the job postings ask for as many as three years of prior work experience (Dehaas, 2014).

Indeed, Andrew Jackson (2010) contends that a noticeable recent employment trend has been the increased emphasis placed by employers on prior work experience. This observation is supported by data collected by the 2012 Work-Integrated Learning Employer Survey, which was co-funded by the Higher Education Quality Council of Ontario and Ontario's Ministry of Training, Colleges and Universities. This survey found that relevant work experience and general work experience were the two most important factors for employers in making hiring decisions (Sattler & Peters, 2012). This finding also aligns with the results of the CCCE's employer survey, which found that most employers look for an average of two years or less of full-time work experience (but not no work experience) when hiring for entry-level positions (CCCE, 2013).

Peter Cappelli (2012), in his book *Why Good People Can't Get Jobs*, argues that labour market mismatches in the US – and consequently high unemployment rates – result from employer hiring practices rather than mismatches between employee skills and employer needs. According to Cappelli, who has tracked employer hiring practices since working on the U.S. Secretary of Labor's Commission on Workforce Quality and Market Efficiency in 1988, employers are not “complaining about the lack of academic skills among job applicants... it is mainly other things that they see as important, in particular the lack of work experience” (2012, p. 10). To support this argument, Cappelli points to findings from the ManpowerGroup Talent Shortage Survey, which show that employers across the Americas are twice as likely to blame difficulty filling positions on a lack of experience than on a lack of soft skills.

Since schools do not always provide students with job-specific experience, training provided by employers has traditionally been the means through which students get the experience needed for their first job. The

problem, according to Cappelli, is that employers do not want to invest the resources required to train a new employee. Youth cohorts, which generally have little work experience, thus become undesirable employees, not because they lack the essential skills required for the job but because employers are unwilling to provide the job-specific training they require. As a result, high unemployment rates for youth can be observed, even while employers claim to face substantial shortages.

Cappelli's view is popular with many labour groups, which argue that employers have inflated the skills gap narrative, placing blame on postsecondary institutions for graduating students with insufficient skills as a means of shifting responsibility for training from business to the education system (Marcus, 2013). Several Canadian reports support the view that employer training has not been a priority in the last decade (Stuckey & Munro, 2013; OECD, 2011; Canada Council on Learning, 2007). Between 1993 and 2013, Conference Board of Canada research found that employer spending on training and development (in constant dollars) declined from \$1,207 to \$705 per employee (quoted in Munro, 2014). This figure is worrying on its own, but is of further concern when compared with U.S. figures on learning development; since 2006, Canadian employers have spent only 68 cents for every dollar spent by American organizations (Hall, 2014). At the same time, less than one-third of Canadian adults received employer-sponsored training in 2009, a participation rate that is well below that of other powerhouse economies in the OECD, including Sweden, Norway, Finland, Switzerland, the Netherlands and the US. Moreover, those Canadians who did participate in training received only 49 hours of job-related training in the 2009 year (Munro, 2014). While there may be legitimate reasons why employers are hesitant to provide training – the chief concern being that competitors will poach trained employees (Canadian Chamber of Commerce, 2012) – this trend suggests that employer alarm over skill shortages may be overstated.

Employers often retort that they would be willing to provide training to prospective entry-level employees who demonstrate the essential skills required to be trained effectively, but that these skills are increasingly lacking in new labour market entrants (Canadian Chamber of Commerce, 2012). Given Canada's weak showing in recent PIAAC surveys on essential skills, this may be a legitimate argument. Moreover, it may help explain why employers increasingly require work experience for historically entry-level jobs. As employers begin to doubt that schools are adequately teaching students the foundational skills, they no longer see formal credentials as accurate signifiers of skill level. Instead, they look to new signifiers, notably work experience, as evidence that prospective employees actually possess the skills they require.

Conclusion

In spite of the considerable attention that skills gaps have received in Canadian policy circles, there is little agreement as to the extent or even existence of such a divide. Given the challenges around predicting and analyzing labour market behaviour, this is perhaps not surprising. However, as our review of these discussions has indicated, the rush from various policy corners to explain and mend the rift between recent postsecondary graduates and the workforce has muddied the waters significantly. Employers, postsecondary institutions and government all have legitimate interests at stake in this issue, yet the overlap of perspectives has conflated a number of distinct dynamics at work in the present circumstances. Our review has attempted to untangle these competing influences in order to clarify the landscape for further analysis and policymaking.

This paper has reviewed four of the claims at the heart of the discussion around the skills gap. These claims – that Canada will not have enough postsecondary graduates to meet future demand for high-skilled workers; that Canadian postsecondary students are graduating with the wrong credentials to meet current and future labour market demands; that Canadian students have the right credentials but lack the essential skills employers desire; and that students have the right skills but lack work experience – divert attention from what is actually happening on the ground. Ongoing policy debates are snarled in questions of impact and

responsibility, but it has so far been unproductive to approach these issues at the level of labour market trends. Moreover, most research to date has emphasized the ‘demand’ side of skills shortages in Canada, relying on employer surveys to generate and analyze data, even though such surveys are generally several steps removed from the point of initial contact between businesses and new graduates in the hiring process. If anything can be concluded from our review of the skills gap debate, it is that policy and research studies are talking past each other.

As we proceed with our series on Canada’s perceived skills gap, we will focus the discourse outlined in this paper through the ‘supply’ side of the skills shortage equation. The second paper in this series describes our content analysis of job advertisements targeting new postsecondary graduates seeking entry-level positions. Though the American job market for college graduates has been studied recently through online job postings (see Carnevale, Jayasundera & Repnikov, 2014), Canada’s skills shortage has yet to be investigated in this way. Moreover, while the American study was conducted at a macro level, drawing broad labour market trends from a sample of nearly 2 million postings, our research takes a micro approach to individual recruitment processes – what skills and qualities employers look for and how these attributes are articulated in the advertisements themselves. This study will be expanded in the third and final paper of the series, which describes the findings of a follow-up survey with the employers behind the job advertisements reviewed in the content analysis to learn about the skills and experience of their new hires. As the quality and accountability of postsecondary education and training are at the heart of HEQCO’s research program, it is in the hopes of encouraging and strengthening the alignment of the PSE and employer sectors that we continue to investigate the relationships between new graduates, the job market and the workforce in Canada.

References

- Adamuti-Trache, M., Hawkey, C., Schuetze, H., & Glickman, V. (2006). The Labour market value of liberal arts and applied education programs: Evidence from British Columbia. *The Canadian Journal of Higher Education*, 36(2), 49-74.
- Association of Canadian Community Colleges (2013). *National Skills Summit summary report (October 20-21, 2013)*. Ottawa: Association of Canadian Community Colleges.
- Axelrod, P., Anisef, P., & Lin, Z. (2001). Against all odds? The enduring value of liberal education in universities, professions and the labour market. *The Canadian Journal of Higher Education*, 31(2), 47-77.
- Beaudry, P., Green, D., & Sand, B. (2013). The great reversal in the demand for skill and cognitive tasks. NBER Working Paper, 1-69.
- Boothby, D., & Drewes, T. (2010). *The payoffs: returns to university, college and trades education in Canada, 1980 to 2005*. Toronto: C. D. Howe Institute. Retrieved from http://www.cdhowe.org/pdf/ebrief_104.pdf
- Brisbois, R., Orton, L., & Saunders, R. (2008). *Connecting supply and demand in Canada's youth labour market*. Ottawa: Canadian Policy Research Networks.
- Brochu, P., Deussing, M., Houme, K., & Chuy, M. (2013). *Measuring up: Canadian results of the OECD PISA study*. Toronto: Council of Ministers of Education, Canada. Retrieved from http://www.cmec.ca/Publications/Lists/Publications/Attachments/318/PISA2012_CanadianReport_EN_Web.pdf
- Burleton, D., Gulati, S., McDonald, G., & Scarfone, S. (2013). *Jobs in Canada: Where, what and for whom?* Toronto: TD Economics. Retrieved from <http://www.td.com/document/PDF/economics/special/JobsInCanada.pdf>
- Canadian Chamber of Commerce (2012). *Canada's skills crisis: What we heard*. Ottawa: Canadian Chamber of Commerce.
- Canadian Council on Learning (2007). *Unlocking Canada's potential: The state of workplace and adult learning in Canada*. Ottawa: Canadian Council on Learning. Retrieved from <http://www.ccl-cca.ca/pdfs/SOLR/2007/AdultENG19juin11h36FINALv6.pdf>
- Cappelli, P. (2012). *Why good people can't get jobs: The skills gap and what companies can do about it*. Philadelphia: Wharton Digital Press.
- Carnevale, A., Jayasundera, T., & Repnikov, D. (2014). *The online college labor market: Where the jobs are*. Washington, DC: Georgetown University Center on Education and the Workforce. Retrieved from <http://www.workforcedqc.org/sites/default/files/images/Georgetown%20U%20Real-time%20LMI%20Executive%20Summary.pdf>
- Carnevale, A., Smith, N., & Strohl, J. (2010). *Help wanted: Projections of jobs and education requirements through 2018*. Washington, DC: Georgetown University Center on Education and the Workforce. Retrieved from <http://cew.georgetown.edu/jobs2018/>

- Canadian Council of Chief Executives (2014). *Preliminary survey report: The skill needs of major Canadian employers*. Ottawa: Canadian Council of Chief Executives. Retrieved from <http://www.ceocouncil.ca/wp-content/uploads/2014/01/Preliminary-report-on-skills-survey-Jan-20-2014-2.pdf>
- Carletta, J. (1996). Assessing agreement on classification tasks: The kappa statistics. *Computational linguistics*, 22(2), 294-254.
- Cheung, C., Guillemette, Y., & Mobasher-Fard, S. (2012). Tertiary education: Developing skills for innovation and long-term growth in Canada. OECD Economics Department Working Papers. 991, 1-46.
- Clark, I., Trick, D., & Van Loon, R. (2011). *Academic reform: Policy options for improving the quality and cost-effectiveness of undergraduate education in Ontario*. Montreal: McGill-Queen's University Press.
- Conference Board of Canada (2007). *Ontario's looming labour shortage challenges*. Ottawa: Conference Board of Canada. Retrieved from http://www.workforcecoalition.ca/downloads/conference_board_report.pdf
- Dehaas, J. (2004, April). 'Entry-level' jobs are getting harder to find. *Maclean's*. Retrieved from <http://www.macleans.ca/work/jobs/entry-level-jobs-are-getting-harder-to-find/>
- Department of Finance, Government of Canada (2014). *Jobs report: The state of the Canadian labour market*. Retrieved from <http://www.budget.gc.ca/2014/docs/jobs-emplois/pdf/jobs-emplois-eng.pdf>
- Drewes, T. (2010). *Postsecondary education and the labour market in Ontario*. Toronto: Higher Education Quality Council of Ontario.
- Employment and Social Development Canada (Human Resources and Skills Development Canada), Government of Canada (2011). *Canadian Occupational Projection System 2011 projections: Imbalances between labour demand and supply 2011-2020*. Retrieved from <http://www23.hrsdc.gc.ca/l.3bd.2t.1ilshhtml@-eng.jsp?lid=16&fid=1&lang=en>
- Employment and Social Development Canada, Government of Canada (2014). *Hiring foreign workers for higher-skilled occupations*. Retrieved from http://www.esdc.gc.ca/eng/jobs/foreign_workers/higher_skilled/index.shtml
- Employment and Social Development Canada, Government of Canada (2013). *Literacy and essential skills*. Retrieved from <http://www.esdc.gc.ca/eng/jobs/les/index.shtml>
- Finnie, R., & Usher, A. (2007). *Room at the top: Strategies for increasing the number of graduate students in Canada*. Toronto: C. D. Howe Institute. Retrieved from http://www.cdhowe.org/pdf/commentary_245.pdf
- Finnie, R. (2013, October). *Tracking postsecondary education labour market outcomes: A data linkage approach*. Presentation to the Higher Education Quality Council of Ontario, Toronto, Ontario.
- Frenette, M. (2014). *An investment of lifetime? The long-term labour market premiums associated with a postsecondary education*. Research Series 11F0019M (359). Ottawa: Statistics Canada.

- Gallivan, M., Truex, D., & Kvasny, L. (2004). Changing patterns in IT skill sets 1988-2003: A content analysis of classified advertising. *ACM SIGMIS Database*, 35(3), 64-87.
- Giles, P., & Drewes, T. (2001). *Liberal arts degrees and the labour market*. Ottawa: Statistics Canada. Catalogue no. 75-001-XPE.
- Goar, C. (2013, August). Is Canada's great skill shortage a mirage? *The Toronto Star*. Retrieved from <http://www.theglobeandmail.com/report-on-business/no-labour-shortage-on-horizon-study-says/article15324642/#dashboard/follows/>
- Grant, T. (2013, November). No labour shortage on the horizon, study says. *The Globe and Mail*. Retrieved from <http://www.theglobeandmail.com/report-on-business/no-labour-shortage-on-horizon-study-says/article15324642/#dashboard/follows/>
- Green, D., & Riddell, W. C. (2013). Ageing and literacy skills: Evidence from Canada, Norway and the United States. *Labour Economics*, 22, 16-29.
- Green, D., & Riddell, W. C. (2007). *Literacy and the labour market: The generation of literacy and its impact on earnings for native born Canadians*. Ottawa: Statistics Canada. Catalogue no. 89-552-MIE—No. 18.
- Hall, C. (2014). *Learning and development outlook – 12th edition: Strong learning organizations, strong leadership*. Ottawa: Conference Board of Canada. Retrieved from <http://www.conferenceboard.ca/e-library/abstract.aspx?did=5734>
- Halliwell, C. (2013). *No shortage of opportunity*. IRPP Study, 42. Montreal: Institute for Research on Public Policy. Retrieved from <http://irpp.org/wp-content/uploads/assets/research/competitiveness/no-shortage-of-opportunity/halliwell-no42.pdf>
- Harper, R. (2012). The collection and analysis of job advertisements: A review of research methodology. *Library and Information Research*, 36(112), 29-54.
- Hsieh, H., & Shannon, S. (2005). Three approaches to qualitative content analysis. *Qualitative Health Research*, 15(9), 1277-1288.
- Jackson, D. (2009). An international profile of industry-relevant competencies and skill gaps in modern graduates. *International Journal of Education*, 8(3), 29-58.
- Jackson, A. (2010). *Work and labour in Canada: Critical Issues*. Second ed. Toronto: Canadian Scholars' Press.
- Kenney, J. (2013, November). *Keynote Speech*. Presented to the Skills and Post-Secondary Education Summit, Toronto, Ontario.
- Knighton, T., Brochu, P., & Gluszynski, T. (2010). *Measuring up: Canadian results of the OECD PISA study, the performance of Canada's youth in reading, mathematics and science 2009 first results for Canadians aged 15*. Ottawa: Statistics Canada. Catalogue no. 81-590-XIE.
- Krippendorff, K. (1980). *Content analysis: An introduction to its methodology*. Thousand Oaks, CA: Sage.
- Landis, J., & Koch, G. (1977). The measurement of observer agreement for categorical data. *Biometrics*, 33(1), 159-174.

- Lefebvre, R., Simonova, E., & Wang, L. (2012). *Issue in focus: Labour shortages in skilled trades—the best guestimate?* Ottawa: Certified General Accountants Association of Canada. Retrieved from http://ppm.cga-canada.org/en-ca/Documents/ca_rep_2012-07_labour-shortage.pdf
- Legault, L. (2013, May). Skills in crisis. *20/20 Canadian Manufacturers and Exporters Magazine*, 8(2), 16-20.
- Li, C., Gervais, G., & Duval, A. (2006). The dynamics of overqualification: Canada's underemployed university graduates. Ottawa: Statistics Canada. Catalogue no. 11-621-MIE—No. 039.
- Lynch, K. (2013, November). Canada needs to improve access to trades training. *The Globe and Mail*. Retrieved from <http://www.theglobeandmail.com/news/national/time-to-lead/canada-needs-to-improve-access-to-trades-training/article15357614/#dashboard/follows/>
- ManpowerGroup (2013). *Talent shortage survey: Research results*. Milwaukee, WI: ManpowerGroup. Retrieved from http://www.manpowergroup.com/wps/wcm/connect/587d2b45-c47a-4647-a7c1-e7a74f68fb85/2013_Talent_Shortage_Survey_Results_US_high+res.pdf?MOD=AJPERES
- ManPowerGroup (2012). *Talent shortage survey: Research results*. Milwaukee, WI: ManpowerGroup. Retrieved from https://candidate.manpower.com/wps/wcm/connect/be31f5804b6f7c07ada6ff4952b5bce9/2012_Talent_Shortage_Survey_Results_ManpowerGroup.pdf?MOD=AJPERES
- Marcus, J. (2013, June). Reported skills gap widens—and so does skepticism. *The Hechinger Report*. Retrieved from http://hechingerreport.org/content/reported-skills-gap-widens-and-so-does-skepticism_12488/
- Mendelson, M., & Zon, N. (2013). *The training wheels are off: A closer look at the Canada Job Grant*. Toronto: Caledon Institute of Social Policy. Retrieved from <http://www.caledoninst.org/Publications/PDF/1013ENG.pdf>
- Meredith, T. (2014). Asking the right questions, solving the right problems. *Policy Options* (May-June 2014). Montreal: Institute for Research on Public Policy. Retrieved from <http://policyoptions.irpp.org/wp-content/uploads/sites/2/assets/po/public-square/meredith.pdf>
- Miner, R. (2010). *People without jobs, jobs without people: Ontario's labour market future*. Toronto: Miner Management Consultants. Retrieved from <http://www.collegesontario.org/policy-positions/MinerReport.pdf>
- Munro, D. (2014, March). *Developing skills: Where are Canada's employers?* Ottawa: Conference Board of Canada. Retrieved from http://www.conferenceboard.ca/topics/education/commentaries/14-03-20/developing_skills_where_are_canada_s_employers.aspx#ftn2-ref
- OECD (2011). *Education at a Glance 2011*. Paris: OECD. Retrieved from <http://www.oecd.org/edu/skills-beyond-school/48631582.pdf>
- Sattler, P., & Peters, J. (2012). *Work-integrated learning and postsecondary graduates: The perspective of Ontario employers*. Toronto: Higher Education Quality Council of Ontario.
- Sorensen, C. (2013, March). The future of jobs in Canada. *Macleans*. Retrieved from <http://www.macleans.ca/work/jobs/the-future-of-jobs-in-canada/>

- Scott, W. A. (1955). Reliability of content analysis: The case of nominal scale coding. *Public opinion quarterly*, 19, 321-325.
- Statistics Canada (2013). *Skills in Canada: First results from the Programme for the International Assessment of Adult Competencies (PIAAC)*. Ottawa: Statistics Canada. Catalogue no. 89-555-X.
- Stuckey, J., & Munro, D. (2013). *The need to make skills work: The cost of Ontario's skills gap*. Ottawa: Conference Board of Canada. Retrieved from http://www.collegesontario.org/Need_to_Make_Skills_Work_Report_June_2013.pdf
- Tal, B. (2012). *The Have and Have Nots of Canada's Labour Market*. Toronto: CIBC Economics. Retrieved from http://research.cibcwm.com/economic_public/download/if_2012-1203.pdf
- Turpin, T. (2014, March). Canada needs a mindset shift to fix the skills gap. *The National Post*. Retrieved from <http://business.financialpost.com/2014/03/12/canada-needs-a-mindset-shift-to-fix-the-skills-gap/>
- Uppal, S., & LaRochelle-Côté, S. (2014). *Overqualification among recent university graduates in Canada*. Ottawa: Statistics Canada. Catalogue no. 75-006-X.
- Usher, A. (2013). *Revisiting the looming labour shortage theory*. Toronto: Higher Education Strategy Associates. Retrieved from <http://higheredstrategy.com/revisiting-the-looming-labour-shortage-theory/>
- Usher, A. (2013a). *Skills shortages (Part 1)*. Toronto: Higher Education Strategy Associates. Retrieved from <http://higheredstrategy.com/skills-shortages-part-1/>
- Watts-Rynard, S. (2014, January). Overcoming Canada's skilled-tradesperson shortage. *The Montreal Gazette*. Retrieved from <http://www.montrealgazette.com/Overcoming+Canada+skilled+tradesperson+shortage/9445160/story.html>
- Weingarten, H. (2014, February). Managing for quality: Classifying learning outcomes. Retrieved from <http://www.heqco.ca/en-CA/blog/archive/2014/02/13/harvey-p-weingarten-managing-for-quality-classifying-learning-outcomes.aspx>
- Weston, G. (2013, March). Peeved Harper aims at 'remaking Canadian labour force'. *CBC News*. Retrieved from <http://www.cbc.ca/news/politics/peevd-harper-aims-at-remaking-canadian-labour-force-1.1338334>
- Wright, L. (2014, March). Labour, skills shortage in Canada? Budget watchdog says no. *The Toronto Star*. Retrieved from http://www.thestar.com/business/2014/03/25/labour_skills_shortage_in_canada_budget_watchdog_says_no.html



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