

“SOFT” SKILLS ARE HARD

A REVIEW OF THE LITERATURE

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Executive Summary

This study provided a systematic review of the academic and “grey” literature on “soft” skills in Canada. A key word search was used to pull a broad range of articles and papers which were coded and analysed to explore the ways in which “soft” skills are defined, developed and measured.

Key findings include:

- There is wide agreement that “soft” skills (often termed “professional” or “generic” skills) are among the skills essential to employment across sectors.
- While there is little agreement, however on how specifically these skills are defined.
- While much attention is focused on providing Science Technology Engineering and Math (STEM) graduates with training in soft skills, less attention is focused on Social Sciences and Humanities (SSH) graduates because of an assumption, perhaps mistaken, that these graduates will possess soft skills.
- Employers report a “skills gap” and generally do not feel graduates possess sufficient “soft” skills to perform effectively.
- There are significant differences in the expectations and perceptions of employers and the perceptions of educators and graduates regarding the level of soft skills graduates possess.
- While there are some standardized tests for some soft skills – writing and critical reasoning for example, many soft skills can only be assessed in context and just as there is little agreement on definition, there is little agreement on assessment of these skills.
- There are many stakeholders involved in the development and assessment of soft skills and most agree a combination of formal and informal or experiential learning are required.
- Because of the way in which soft skills are learned, many segments of the population are disadvantaged in access to the coaching, training and role models needed to develop these skills and cultural biases may play a role in the definition and assessment of soft skills. Moreover the boundaries between “skills” and “personality traits or habits” are blurred particularly with respect to interpersonal skills. A diversity lens is critical.
- The lack of consistency in definitions and fragmentation of stakeholders involved in soft skills development compounds the problem and more coordination is needed to develop shared expectations and to bridge the gap between supply and demand.
- More research is needed to systematically assess empirically the ways in which soft skills can be defined, developed and evaluated.

Introduction

“Soft skills are hard”

- Carole Stephenson, [Former] President of Lucent, cited in Innovation Nation: Canadian Leadership from Java to Jurassic Park, 2002

Overview of the project

In recent years, substantial research and industry attention has been paid to the perceived gap between the skills possessed by new university graduates and the requirements of employers in Canada’s fastest growing sectors. Surveys of employers have tended to categorize skills into “technical skills” and “soft skills”. However, existing research on these gaps is still lacking, particularly on the nature of required “soft skills” and how they can best be developed. For example, much of the research on the nature of “soft skills” has tended to focus on the needs of graduates from Science, Technology, Engineering and Math (STEM) or other professional disciplines, such as business, assuming that Social Sciences and Humanities (SSH) graduates have already developed “soft skills” through the course of their studies. However, there is evidence that while SSH graduates may have important critical thinking and communications skills, they may lack the particular “soft skills” required by employers (Cukier, 2014; Singmaster, 2013). The way by which these skills are defined, measured and mastered is an important area to explore given the importance of addressing the problem of “jobs without people” and “people without jobs” in Canada.

Building on extensive research as well as work with employers and community organizations concerned about this issue, our study will analyze existing industry and academic literature on “soft skills” demanded by employers compared to the proficiencies of recent graduates. It will explore the knowledge gaps and present steps for future research and practice in this area with a core aim of informing targeted government and community programming. This study places particular emphasis on marginalized communities, who may be disproportionately affected by “soft skills” gaps.

Soft skills: Keys to success in the new global economy

Technological growth, the expansion of a global communication and IT infrastructure, the ageing labour force, and the growth of the knowledge economy in Canada have prompted demand for workers with new skill sets. Recent research demonstrates a perceived gap between the skills possessed by many university graduates and the requirements of employers in Canada’s fastest growing sectors (e.g., Allington and Fernandez-Fuentes, 2013). For example, in a recent survey of 1538 Ontario employers, more than 70 per cent of respondents perceived that a gap exists in “essential skills” among their current employees and consequently that “there is clearly a need for improved essential skills in the workforce” (Conference Board of Canada, 2013). In some circumstances, companies have argued that the youth skills gap is a critical

enough of an issue that it could limit growth of the Canadian labour market and economy (Tal, 2012), while others argue that this perceived gap is overstated (Mas, 2015; TD Economics, 2013). There are also differences in how employers and graduates perceive their competencies (Cukier, 2014).

Project scope

This project has reviewed the existing English and French language literature from Canada and internationally to explore the following themes:

- Definitions of soft skills: a typology of different soft skills valued in the workplace as well as their similarities and differences.
- Benchmarks used to assess soft skills in academic and professional contexts.
- Strategies related to soft skills development, including operative definitions, components and evaluations.
- Taxonomies of stakeholders as well as initiatives that provide (or claim to provide) soft skills.
- Potential models that may serve as a basis for future work.

Methodology and approach

In order to better understand the question at hand, our project will examine the existing English and French literature surrounding “soft skills” both in Canada and internationally. Following Cukier et. al. (2010), our methodology included meta-synthesis employing textual analysis tools and hand coding. We drew our sample from both the academic and grey literature.

Our procedure was structured as follows:

- 1) We conducted a search of the relevant academic and professional databases such as Academic Search Premier, CBCA Complete, ProQuest Research Library, and Web of Science for English language documents, using the following search terms:
 - soft skill(s)
 - hard skill(s)
 - assessing/assess/assessment + soft skill(s)
 - evaluating/evaluate/evaluation + soft skill(s)
 - soft skill(s) + gap(s)
 - soft skill(s) + mismatch
 - qualitative skill(s)
 - qualitative skill(s) + gap(s)
 - qualitative skill(s) + mismatch
 - training/train + soft skill(s)
 - communication skill(s)
 - communication skill(s) + gap(s)
 - communication skill(s) + mismatch
 - interpersonal skill(s)

- project management skill(s)
- problem solving skill(s)
- teamwork skill(s)
- non-technical skill(s)
- non-technical skill(s) + gap(s)
- non-technical skill(s) + mismatch
- critical thinking skill(s)
- essential skill(s)
- generic skill(s)
- generic skill(s) + gap(s)
- generic skill(s) + mismatch
- employment factor(s)
- employment + skill(s)
- employability + skill(s)
- employability + Canada/Canadian
- employ + career(s) + graduate/graduation + Canada

We prioritized Canadian sources by including the search terms Canada in two of our searches.

- 2) We conducted a search of the relevant academic and professional databases such as ProQuest Research Library and Google Scholar for French language documents using the following search terms:

- compétence(s) non technique(s)
- compétence(s) technique(s)
- compétence(s) non technique(s) + évaluer
- compétence(s) non technique(s) + manque
- compétence(s) non technique(s) + lacune
- compétence(s) non technique(s) + inadéquation
- compétence(s) non technique(s) + décalage
- compétence(s) qualitative(s)
- compétence(s) qualitative(s) + manque
- compétence(s) qualitative(s) + lacune
- compétence(s) non technique(s) + formation
- compétence(s) en communication
- compétence(s) en communication + manque
- compétence(s) en communication + lacune
- compétence(s) en interpersonnelles
- savoir-être
- compétence(s) de la gestion de projets
- compétence(s) en résolution analytique de problèmes
- compétence(s) en travail d'équipe
- pensée critique

- compétence(s) essentielle(s)
 - compétence(s) générale(s)
 - compétence(s) générale(s) + manqué
 - compétence(s) générale(s) + lacune
 - facteur d'emploi
 - emploi + compétence(s)
 - employabilité + compétence(s)
 - employabilité + Canada/Canadienne
 - emploi + récemment diplômé + Canadien(s)/Canadienne(s)
 - carrière + récemment diplômé + Canadien(s)/Canadienne(s)
- 3) The French and English search results helped us to create a database of 4662 non-unique results. We scrubbed the database for both the French and English language documents to remove all duplicate results. This left us with 4571 unique results.
- 4) In addition, we searched “grey literature” for relevant documents. We found 7502 international, regional and national reports.
- 5) We scrubbed the database to remove all duplicate results. This left us with 7354 results.
- 6) We coded the titles of the first 6683 results of the academic and grey literature search. These results were determined by the search engines to be the most relevant, as each individual search was organized in order of relevance. The categories for coding included articles on definition and measurement, employer perspectives, pedagogy and skills development, issues related to diversity, evaluations of specific projects, analysis of soft skills for specific professions, international studies outside of high income OECD countries (e.g., USA, Australia, EU), not relevant, and undetermined. Our analysis focused on those coded in the first four categories (570 articles) and published since 2000.

Key articles for analysis	Number of articles
i) Definitions and measurement (large surveys or assessment projects and cross-jurisdictional studies) + theoretical papers	146
ii) Employer perspectives + labour force issues	198
iii) Pedagogy and skills development	176
iv) Diversity (members of diverse groups lacking, or facing additional barriers in procuring, soft skills)	50
	570 total
Articles excluded from in-depth analysis	
v) Evaluations (assessments of a small-scale specific project, such as writing workshops or using a certain classroom exercise)	
vi) Soft skills' importance for specific professions	

vii) International (excluding high-income, English-speaking countries)	
viii) Not relevant	
ix) Undetermined	
	6113 total

Definitions of Soft Skills

Soft skills vs. hard skills

Perrault (2004) defines “soft skills” as personal qualities, attributes or the level of commitment of a person that set him or her apart from other individuals who may have similar education and experience. But what exactly are these “soft skills”? Our review of the literature suggests some common ground in terms of definitions, but more differences than similarities.

James and James (2004) proposed that soft skills are a new way to describe a set of abilities or talents that an individual can bring to the workplace, including career attributes such as team skills, communications skills, leadership skills, customer service skills and problem solving skills. Sutton (2002) noted that soft skills are so important that employers identify them as the number one differentiator for job applications in all types of industries, which is consistent across research in Canada, the USA, Australia and the European Union. This trend in employer needs has influenced several professional associations in Canada to include soft skills in their competency frameworks, which all members must meet the conditions of (Clapperton, 2015; CCHRA, 2014). In the Canadian context, “soft skills” are generally understood to include writing skills, oral communication skills, presentation skills, interpersonal skills, priority and goal setting, and lifelong learning skills (e.g., Canadian Chamber of Commerce, 2014), as differentiated from “hard skills” such as technical skills. Key soft skills for recent graduates include leadership skills, critical thinking and problem solving skills, information management skills, and entrepreneurship skills (Kee, Ahmad, Ibrahim, & Nie, 2012). While there are common features among definitions in the literature, there is little consensus on a definition of the list of “soft skills”. In most cases, they are understood primarily in opposition to hard or technical skills: in other words, the non-domain-specific skills that help individuals thrive in a professional context (Heckman and Kautz, 2012; Bancino and Zevalkink, 2007; Andrews and Higson, 2008).

Soft skills are also labelled in other ways, such as “professional skills” (e.g. Environics, 2014) or “generic skills” (e.g. Badcock et al., 2010). The Conference Board of Canada (2013) calls these skills “essential skills”. Human Resources and Skills Development Canada refers to soft skills as being among the “building blocks” of nine essential skills: reading, document use, writing, oral communication, thinking, working with others, and continuous learning – all soft skills – plus numeracy and digital technology, suggesting that these skills are essential for success in all workplaces.

While taxonomies vary, terms like “essential skills”, “soft skills”, “professional skills”, and “generic skills” are often used almost interchangeably, and the importance of these skills is growing in “information societies” (Johnson et al., 2002; Canada West Foundation, 2014). Figure 1 (below) illustrates a hierarchy of skills as defined by Statistics Canada.

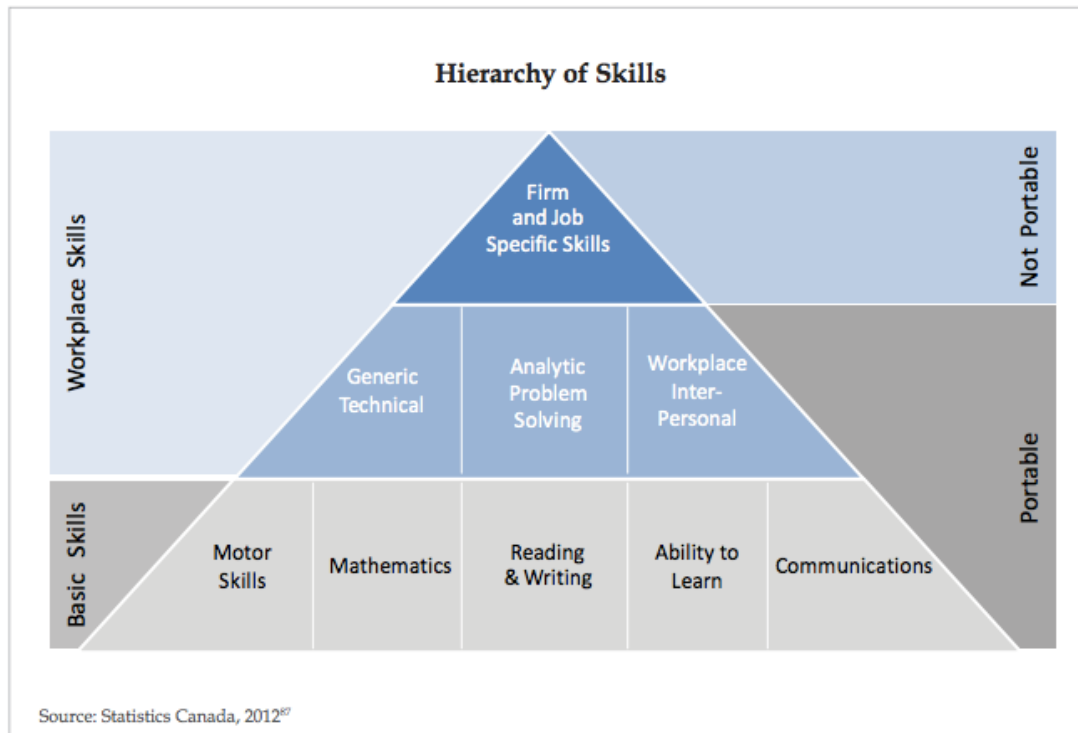


Figure 1: Statistics Canada's Hierarchy of Skills (Canadian Chamber of Commerce, 2013)

As well as firm and job-specific skills and more generic technical skills, Stats Canada includes “soft skills” among its “workplace skills”, which include analytic problem solving and workplace inter-personal skills, as well as among its “basic skills”, which include reading and writing, ability to learn, and communication skills (2013).

Even in highly technical fields like medicine and engineering, these soft skills (known in these fields as professional skills) are prized. Professional skills in this context have been defined as having the following dimensions: cognitive, technical, integrative, contextual, relationship, affective/moral, and habits of mind (Epstein and Hundert, 2002).

We compared various taxonomies of “soft skills” which ranged from short lists of a few basic groupings such as those described above to long lists of more than twenty-five skills (e.g., Jackson 2012). What emerged was some consensus around a core group of skills with differences of categorization for others. We also found considerable blurring in definitions between the skills that are taught versus intrinsic personality traits or character. We will discuss skills in the order of their frequency of appearance.

Specifically, the next section will discuss communication skills, critical thinking, problem solving, interpersonal skills/intercultural sensitivity/cross-cultural awareness, team work/working with others, leadership, organization skills, project management, creative thinking/entrepreneurship/innovation, and ethical

reasoning and compare selected taxonomies in Appendix 1 to illustrate the differences in structure and definitions.

Communication skills

Communications skills were typically defined as either verbal or written communication skills, with some lists including presentation skills and listening skills. Verbal, written and presentation skills are crucial for any modern workplace, both for interactions with customers or clients as well as for interactions with colleagues. Listening is often overlooked in taxonomies (Brink and Costigan, 2015), although it has been shown to be a factor in professional success for careers ranging from sales to healthcare, and even highly technical fields like engineering (Sharma and Patterson, 1999; Maguire, 2002; Pitceathly, 2002; Darling and Dannels, 2003).

Critical thinking

The next more frequently cited skill was critical thinking, although there was considerable debate about its definition and how it related to other cognitive skills. According to Lafortune, Pallascio, and Daniel (2004), critical thinking requires an attitude of open-mindedness, an ability to tolerate ambiguity and to question one’s own views, and an awareness of the impact of emotion and individual experience on one’s beliefs.

Problem solving

Analytical or critical thinking skills help people reason through a problem to get to the root of the issue and find a solution. A recent Canadian University Consortium survey identified problem solving and analytical thinking as among the most important skills that students feel they should be learning at University, a finding supported by similar surveys of employers (HEQCO, 2015). In fact, literature has shown that generally speaking, employers put greater value on problem solving and critical thinking skills than they do on more traditional educational outcomes such as reading comprehension or numeracy (McLester and McIntire, 2006), showing that this skill is essential to student employability.

Interpersonal skills and intercultural sensitivity

Interpersonal skills and intercultural sensitivity are related to intrinsic personality traits such as self-other orientation and agreeableness, while also being made up of soft skills like emotional intelligence and cultural awareness. While communication skills are demonstrated through tasks and behaviours, interpersonal skills are considered to be “relational and process oriented” (Duffy et. al, 2004). Important elements include respect, attention, presence, caring, and interest in others. These competencies are often called “humanistic qualities” (ABIM, 1995). Emotional intelligence (EI) is considered key to developing interpersonal skills. It is a subset of social intelligence that “involves the ability to monitor one’s own and others’ feelings and emotions, to discriminate among them and to use this information to guide thinking and actions (Salovey and Meyer, 1990). In general, studies have shown that EI is a predictor of success and often linked to a person’s resilience and problem solving abilities (Bastian et

al., 2004; Carmeli, 2003). This success may be due to the association of heightened interpersonal skills with employee motivation, responsibility and engagement (Segal, 2006).

Increasingly, cultural awareness is embedded in definitions of interpersonal skills rather than as a separate category. High levels of emotional intelligence can help a person develop higher levels of cultural awareness, which is characterized by being aware that other people may come from different cultural backgrounds and also showing value and respect for perceived cultural differences (Rew et al., 2003). This is especially relevant to globally-minded or international organizations, which may both contain employees from many different cultures and also serve clients or customers from around the world (Lee et al. 2001; Alon and Higgins, 2005).

Team work and working with others

Although sometimes linked to interpersonal skills, employees who are considered to be skilled at working with teams not only show increased performance over those who are not, but also feel a greater sense of autonomy, satisfaction and identification in the workplace (Bacon and Blyton, 2003). Teams are considered to be “more effective than individuals because team members can share the workload, monitor the behavior of their teammates, and combine their different areas of expertise” (Ellis, Bell, Ployheart, Hollenbeck and Ilgen, 2005, p. 641). In fact, in very complex projects, team work may be required simply because one individual is incapable of completing the project alone within the necessary timeframe (Seat, Parsons and Poppen, 2001).

Other Skills

There was a cluster of skills – leadership, organizational skills, project management, and professional responsibility – which intersected in several ways. For example, while leaders are defined as an individual with social influence that is responsible for the maintenance of a group, and concerned with accomplishing a task or goal (Pfeffer, 1977), some considered leadership part of project management, others considered it part of working as a team.

Organizational skills were distinguished by some and embedded in project management by others or as part of professional responsibility, which included skills such as time management and reliability. Project management was sometimes defined as a key skill but it is actually a “meta skill” including all the skills necessary to complete a project from start to finish, such as time management, the ability to work with a team, leadership, goal setting, motivation, project planning, and strategic thinking. It also includes personality traits like reliability and self-other orientation. In other taxonomies, time management is defined as “the process of determining needs, setting goals to achieve these needs, prioritising and planning tasks required to achieve these goals” (Claessens, van Eerde, Rutte and Roe, 2007). Creativity and creative thinking also emerged in some of the taxonomies, particularly more recent ones. Some argue that while these are often regarded as personal traits, they are not

necessarily innate, but can be learned and nurtured through experience (Dyer, Gregersen and Christensen, 2011). The ability to think creatively not only helps to foster innovation but also helps improve problem solving (Zhou, Hirst, and Shipton, 2012). Creativity is essential to innovation and often understood to be part of a successful entrepreneurship toolkit. Like creativity, entrepreneurship is often thought of as connected to innate traits that some people are born with. It is thus not often considered something that can be taught. Successful entrepreneurship involves the ability to take risks and learn from mistakes, and thus requires a large degree of resilience (Brody, et. al., 2002). Like entrepreneurship itself, resilience is a soft skill that is often misidentified as a personality trait. However, studies have shown that under the right set of circumstances, resilience can actually be taught and developed (Winwood, Colon and McEwen, 2013). Ethics and ethical reasoning also emerged in some of the taxonomies (Jackson, 2012; Mitchell et. al., 2010).

Supply and Demand for Soft Skills

Overview

Much of the focus of research on “soft skills” has been on the needs for these skills among Science, Technology, Engineering and Math (STEM) graduates (Gordon, 2013) and Business Students (AACSB, 2014). There may already be concrete results of this focus: research on Canadian engineering students has found that they recognize interpersonal and teamwork skills as essential for their transition into the workplace (Bousadra, 2006). Less attention is focused on social sciences and humanities graduates, yet some research suggests that while they are well-trained in research, critical thinking, and academic writing, they may still lack many of the soft skills required for the workplace (e.g., Singmaster, 2013). Fundamental to understanding how to best equip any student with relevant soft skills is a consideration of how to match talent (supply) with employer needs (demand). Much literature also currently focuses on the needs of employers (Hernández-March, Martín del Peso and Leguey, 2009; Robies, 2012; Greive, 2013) or the attempts to nurture soft skills within higher education (Cord and Clements, 2010; Olague-Caballero 2014; Garcia-Carbonell, Andreu-Andres & Watts, 2014).

Some point to a gap between what employers need and what students have, but the cause of the skills gap is disputed. Some point to structural issues such as the retiring baby boom generation and changing labour market demands (e.g., Canada West Foundation, 2014) while for others, an emphasis on hard skills training and measurable knowledge outcomes (e.g., Millennial Majority Workforce, 2015) has come at the expense of “soft” workforce preparation (e.g. Johnston & McGregor, 2005). While Canadian students are graduating in unprecedented numbers and with higher human capital than previous generations (HRSDC, 2014), the emphasis on measurable outcomes has led to concern regarding graduates’ professional, transferable skills (Canadian Chamber of Commerce, 2014). This section explores the skills gap that exists between these graduates and the talent shortage, and the importance of soft skills in closing that gap.

What employers need

Due to increased competitive pressure, employers across sectors have identified a strong need for non-technical skills, including problem solving skills, teamwork skills, communication skills, time management, and cultural adaptability (Bailey, 2014; Grieve, 2013; Gillard, 2009; Moss and Tilly, 1996). Interpersonal and communication skills, including listening skills, are particularly highlighted with respect to the hiring and promotion of employees in a variety of industries, suggesting that these skills are highly valued by employers (Gillard, 2009; Reinsch and Gardner, 2014; Grieve, 2013).

Survey data offers additional insights into these trends. For example in our previous research, a majority of employers we surveyed wanted potential employees to possess “a broad range of knowledge and skills” in addition to

field- or domain-specific knowledge (Cukier, 2014). In a recent industry survey, 29% of employers commented that candidates were lacking in soft skills – this was even more than technical skills, which only 23% of employers mentioned were deficient (Workopolis, 2015). Similarly, a recent Environics survey of employers indicated that 62% of employers would hire a candidate who possesses soft skills and who is a good fit, providing training for the specifics of the job rather than continuing a long search for someone who possesses both technical skills and soft skills (Environics, 2014; Bountrogianni, 2015).

In the future, this trend looks like it will continue to intensify. A recent working paper from the National Bureau of Economic Research in the US showed that while computers are replacing highly technical and cognitive work, human interaction has proven very difficult to replace, meaning that since the 1990s, North America has experienced an increase in jobs with high social skill requirements relative to other job categories (Deming, 2015). This means that graduates who possess soft skills such as interpersonal interaction and communication may be well positioned to benefit if this trend continues.

Graduates and soft skills

Formerly, students in the hard sciences were considered to be lacking in soft skills when compared to their peers in social sciences or humanities programs, but research shows the gap is beginning to narrow as more communication, interpersonal and project management skills training is offered to science students (Williamson, 2011). This is good news for science and technical students of course, but may not be as rosy for social science and humanities students, who do not tend to receive the formal training necessary to be truly proficient in skills such as project management, time management and strategic thinking. In fact, research shows that not only does a gap exist between what soft skills students possess upon graduation and what soft skills employers are looking for, but there is also a gap between student perceptions of their own abilities (particularly among social sciences and humanities graduates) and employer perceptions of student abilities.

The soft skills gap

A recent study by the Canadian Chamber of Commerce showed that while Canadian employers value soft skills in new hires, there are concerns that as early as in high school, Canadian students are not developing the needed skill sets, given the decline in Canada’s scores in OECD surveys of 15 year-olds (Canadian Chamber of Commerce, 2014). While post-secondary education in the social sciences and humanities trains students in academic research, critical thinking, and academic writing, studies suggest they may lack the professional skill set required to succeed in the workplace. For example, while they have communications skills (eg. write essays, present, discuss) they have not applied them in professional contexts (eg. writing memos, briefs, reports) (Singmaster, 2013; Matson, Donmez, Savan, Photiadis, Farahani, & Dafoe, 2012; Conference Board, 2012). Consequently, students with applied vocational training may have better labour market outcomes, at least in the short term (Lin, Sweet, & Anisef,

2003) and the premium placed on a university education, particularly in SSH disciplines, has been questioned (Taj & Enenajor, 2013). Graduates of SSH disciplines are 12% more likely than Science and Health graduates to be overqualified for the work they find after graduation (Statistics Canada, 2006) and less likely than STEM graduates to be working in a position related to their education (Statistics Canada, 2014). Vultur (2010) argues that this trend of underemployment amongst graduates students is related to employers' increasing insistence on hiring candidates with strong soft skills but differences in the definitions of these skills.

Debates currently surround the extent to which university graduates, particularly in SSH, are under-employed (e.g Orpwood et al., 2012). Some have launched an all-out assault on the humanities, arguing that the degrees are “useless” (O’Leary, 2015). Others maintain that Canada’s ability to remain competitive in a global marketplace requires graduates to have both the hard and soft skills needed to succeed (COU, 2014). Many argue that while they may be misunderstood and under-valued, “soft skills” and lifelong learning help build resilience in an economy and its labour force (Shuman et al., 2005). Still others contend that “soft skills” are actually rarer than “technical skills” even though they are critical to equipping graduates to work across a variety of contexts and disciplines, helping them adapt to new environments, contexts, and disciplines and to complement highly technical or profession-specific occupations (Krassadaki and Matsatsinis, 2012). Exploring this literature systematically and understanding the competing perspectives is important.

A recent survey of Canadian business leaders supports this claim, indicating that 7 out of 10 executives surveyed felt strongly or somewhat strongly that a skills gap exists and has increased over the past five years (Environics, 2014). Other surveys of employers and recent graduates revealed not only that employers perceived a gap between the skills recent graduates possessed and the ones needed for the job, but there is a gap between employer perceptions of graduate skill proficiency and graduate perceptions of their own proficiency upon graduation (Cukier, 2014). For example less than 50% of employers ranked recent graduates as “above” average for continuous learning, writing and thinking skills, compared to recent graduates’ self-rankings of 93% above average in continuous learning, 93% above average in writing, and 93% above average in thinking skills (Cukier, 2014). These gaps also existed between employer perception of recent graduates’ problem solving, project planning, and communication skills and recent graduates’ self-perceptions in these skill areas.

A recent survey by the American Association of Colleges and Universities (AACU) examined employer needs and found that employers are interested in graduates who possess a range of soft skills, including communication skills and project management skills (2015). However, a similar study also conducted by the AACU, this time focusing on student perceptions, showed similar findings to our own research, namely that students “consistently rank themselves as

prepared in areas where employers do not agree” (Jashik, 2015). In fact, in a number of important soft skills, including critical thinking, oral and written communication, and creativity, students were twice as likely as employers to rate themselves as well prepared.

Diversity and the soft skills gap

In Canada, diversity adds to the complexity of the discussion on soft skills. Marginalized youth – including immigrants, youth with low socio economic status, aboriginal youth, and youth with disabilities – have higher rates of unemployment than others, and some argue this is partly because of the their lack of “soft skills” and social capital such as professional contacts (CivicAction, 2014). Despite the majority of immigrants entering Canada with higher levels of education and technical skills than Canadian-born residents (Galarneau and Morissette, 2014), barriers such as language inhibit the development of professional communication, including writing (Angouri, 2013), and may limit access to networking opportunities (Tange and Luring, 2009). Furthermore, norms surrounding professional and workplace skills (e.g., pertaining to interpersonal relationships and behaviour) may differ between cultures and regions (Girard & Bauder, 2005). While the overall youth unemployment rate was 13.3 per cent, the Aboriginal youth unemployment rate was 20.9 per cent; the immigrant youth rate was 22.7 per cent; and the youth with disabilities rate was 23 per cent (Boutillier, 2015). These groups have less access to resources such as targeted programming and mentors, and lower high school completion rates (Hoskins and Meilleur, 2012).

Finally, employers may carry their own implicit and unchallenged biases. For example, Moss and Tilly’s (1996) research showed that while managers reported the importance of soft skills, in particular communication and interpersonal skills, they also reported that they viewed certain cultural groups as lacking in the essential soft skills needed to compete for jobs and promotions. More study is needed to recognize and rectify the structural limits that inhibit the ability of the people in these groups to find meaningful employment opportunities.

Conclusions and future research

Fundamental to understanding how to best equip any students with relevant soft skills is a consideration of how to match talent (supply) with employer needs (demand). Generally, we found the following:

- Employers report that they want employees to possess a diverse skill set, including a wide variety of soft skills even in highly technical fields.
- Employers also report that there is a gap between what they need and what current graduates possess.
- There is a gap between how graduates and employers assess skill levels.
- Marginalized youth, including youth with lower socio-economic status and diverse youth, may not have access to the same educational and cultural opportunities to develop soft skills.

Benchmarks and Assessment of Soft Skills

Overview

The research suggests a range of methods are available to measure the professional skills of graduates. For example, Australia uses the “generic (professional) skills” scale via the Course Experience Questionnaire (CEQ), given to all new university graduates (Johnson, 1998). The Association to Advance Collegiate Schools of Business (AACSB) worldwide member schools use learning goals consistent with the school’s mission and objectives to measure the desired educational accomplishments of graduates. In Ontario, quality assurance measures have been implemented in order to assess expectations and learning outcomes for current degree programs every eight years (Council of Ontario Universities, 2014). Other benchmarking and assessment tools including learning portfolios (Paulson et al., 1991) and self-assessment and peer review to measure progress (Dochy & McDowell, 1997). A cross-national comparison of these measures will be useful to assess best practices and performance across universities.

Often soft skills can be difficult to assess. Generally speaking, standard achievement or IQ tests cannot capture proficiency in soft skills (Heckman and Kautz, 2012). Instruments such as the employment readiness scale in Canada measure soft skills to a certain extent, using psychometric questioning to do so, though these kinds of instruments tend to focus on self-efficacy, goal setting, social skills, and past performance over other soft skills such as communication skills or time management (Ward and Riddle, 2014). Some literature suggests, however, that many soft skills can only be effectively evaluated through on-the-job observation, meaning that a traditional classroom may not be a suitable location to benchmark key soft skills (Lane and Christensen, 2015).

Measurement of communication skills

As with interpersonal and intercultural competence, verbal and digital communication skills are often assessed through questionnaires employing either self- or peer-assessment approaches (Makoul, Krupat and Chang, 2007). Psychometric questionnaires alone, however, cannot tell the whole story, since communicative competence must be considered to be interactional (Diez, 1984), involving an active listening component as well as verbal competence (Diez, 1984; Riggio, 1986). Literature on acquiring and assessing communication skills mostly focuses on students from health care or engineering, and supports the use of psychometric testing and service learning (Shuman, Besterfield-Sacre and McGourty, 2005; Guiton, Hodgson, Delandshere and Wilkerson, 2004; Joshi, Ling and Jaeger, 2004; Rider, Hinrichs and Lown, 2006).

Promising work has been completed in the field of public relations using “port of entry” or the professional skills that are deemed most necessary for entry-level employees as a means of assessing benchmarks in the industry that can guide the instruction of students in public relations programs (Brown and Fall, 2005). Similar industry-led benchmarks for communication skills do not currently seem

to be present outside of the professional communication industry, but a Communication and Teamwork Skills assessment (CATS) framework does exist within the field of healthcare and is tied back to psychometric communication tests to gauge the skills of healthcare professionals (Frankel, Gardner, Maynard and Kelly, 2007).

Measurement of critical thinking

It is difficult to test for either critical thinking or creativity using multiple choice pen and paper tests. However in the field of nursing, the California Critical Thinking Disposition Inventory (CCTDI), a 75-item instrument, has been employed with some success (Facione, Facione and Sanchez, 1994). Others have suggested that the critical thinking skills of post-secondary students could be evaluated by students' ability to judge the quality of sources of information, consider and synthesize opposing points of view, and explain their reasoning when making team decisions (Thomas, 2011).

Measurement of problem solving

As defined above there are different components to problem solving, including creativity and creative thinking, resilience, and analytical and critical thinking. Each of these components can be measured independently. Self-assessments of creativity tend to be unreliable (Kaufman, Lee, Baer and Lee, 2007), but the consensual assessment technique (Baer, Kaufman and Gentile, 2004), in which participants create something and then experts assess the creativity, avoids some of the pitfalls of other creativity tests. Critical thinking is similarly difficult to measure well, since it is a complex process to define in the first place (Ennis, 1993).

Overall, resilience is the product of many other inter-related factors, including self-efficacy, social support, and access to information. Therefore, unlike creativity or critical thinking, resilience is easier to assess to a certain degree with psychometric testing (Wanberg and Banas, 2000). The literature on occupational health recommends that organizations benchmark measures of psychosocial health and resilience against other similar organizations, but it offers few practical examples of this in action (Tehrani, 2015). Another tactic involves benchmarking an individual against themselves as a judge of future progression and performance (Turnbull and Noble, 2014). In measures of both creativity and critical thinking, benchmarks are difficult to find.

Measurement of interpersonal and intercultural competence

Like project management skills, interpersonal skills tend to be assessed as a list of competencies that are intended to be performed on the job (Hobgood, Rivello, Jouriles and Hamilton, 2002; Duffy, Gordon, Whelan, Cole-Kelly and Frankel, 2004). Some recommend situational judgment tests, which do not require direct observation, and instead employ video-based or written scenarios, asking participants to indicate how they would react, choosing from a list of responses (Lievens and Sackett, 2011). However, both direct on-the-job observation and situational judgement tests are primarily employed in health care. The

assessment of interpersonal skills in higher education takes a slightly different approach.

Studies of higher education and the measurement of interpersonal skills tend to focus on peer assessment and student self-assessment (Cassidy, 2006; Falchikov and Boud, 1989; Somervell, 1993; Falchikov and Goldfinch, 2000). However, studies have also revealed that peer and self-assessment can be problematic, particularly when applied to professional skills rather than “academic products and processes” (Falchikov and Goldfinch, 2000, p.315).

Intercultural competence, on the other hand, can be measured using a variety of techniques, including interviews, questionnaires, journals, and observation (Portillo, 2004; Deardroff, 2006; Deardroff, 2009). All cases require participation in experiential learning environments with an accompanying assessment. Intercultural competence is usually assessed using Fantini’s Assessment of Intercultural Competence or an adaptation of it (Venderheijden, 2011), in which participants are assessed based on the core competencies of knowledge, attitude, skills and awareness. Someone with strong intercultural abilities also usually possesses strong interpersonal abilities: that is, they possess “respect, empathy, flexibility, patience, interest, curiosity, openness, motivation, a sense of humor, tolerance for ambiguity, and a willingness to suspend judgment (Fantini, 2000, p.28). Unfortunately, however, few professional benchmarks currently exist for either intercultural or interpersonal competence (Venderheijden, 2011; McCabe, 2004).

Measurement of leadership, organization and project management

Researchers have identified ten project success factors (Pinto and Slevin, 1988) for assessing project manager effectiveness.

From their analysis of Slevin and Pinto’s framework, combined with others in the literature, Awan, Ahmed and Zulqarnain suggested that the assessment of project management effectiveness needs to be thought of as a “process of continuous evaluation” (2015, p. 29). However, the effectiveness of the project itself can only be assessed at the end of the project, when it is possible to determine if a project has met expectations and been delivered on time and on budget.

In the project management literature, a Project Management Performance Assessment model (PMPA) is used to determine the effectiveness of project manager’s performance (Qureshi, Warraich, & Hijazi, 2009). The PMPA is made up of five enablers of project management (PM) performance. They are PM Leadership; PM staff; PM policy and strategy; PM partnership and resources; and project life cycle management process (Asad Mir and Pinnington, 2013). However, as with the Slevin and Pinto Framework above, there is no one best practice for assessing the presence of these five enablers except to view the project in action. Therefore, to scale this down to an individual or entry level of project management skill, one would have to be present to assess how a person is completing a project. Project management skills can be benchmarked

according to leaders in this area (Barber, 2004), though this type of benchmarking is currently only used with respect to professional project managers, rather than in the measurement of project management as a soft skill.

Conclusions and future research

Soft skills are difficult to objectively assess. Generally speaking, standard achievement or IQ tests cannot capture proficiency in soft skills, although they can assess aspects such as writing skills and reasoning (Heckman and Kautz, 2012). Instruments such as the employment readiness scale in Canada measure soft skills to a certain extent (Ward and Riddle, 2014). Overall, there is significant variation across the literature on ways of measuring soft skills:

- Many of the assessment tools currently used are based on psychometric or "pen and paper" survey instruments and thus may not be the most accurate way to measure soft skills, most of which require at least an element of observation or interviews.
- Some sectors have established methods for assessing and benchmarking soft skills (e.g., health care or public relations), but in the majority of sectors, a unified benchmark for soft skills is absent.
- More research needs to be done to clarify definitions being used and to benchmark Canada's performance compared to other regions.

Stakeholders

Overview

In this area, as in other aspects of skills development, collaboration across sectors is critical to developing shared understanding of the nature of skills needed, how to define, measure and develop them. Our review of the literature suggests, however, there is considerable fragmentation among stakeholders and silos which impede collaboration. The gap, in particular between supply (training and post secondary educators) and demand (employers) is particularly acute.

Government

In Canada, a coordinated strategy on skills and training is challenging because of the division of power with respect to education, training and skills development. The challenges of coordinating between levels of government and across levels of government (for example between ministries focused on economic development and on education) have been well documented. Numerous reports and round tables have called for more cooperation and coordination but to date there are few mechanisms that move beyond discussion.

Education (K-12 and beyond)

Formal education in particular (e.g., elementary and secondary schools, colleges and universities) are important places where soft skills can be taught, assessed (potentially, given experiential learning opportunities), and practiced in a systematic way across the curriculum. In Quebec, the public education system has prioritized the teaching of interpersonal skills since the 1980s (Gohier, 2006). For example, Quebec’s Ministry of Education currently considers judging critically and arguing logically as key intellectual competencies (Ministère de l’Éducation du Québec, 2001). However, given the challenges of definition and measurement most jurisdictions focus, at most, on assessing reading comprehension and writing in a standardized way.

While there is currently emphasis on the need for teaching soft skills in technical and practical fields such as health care, engineering and business, there is evidence to suggest these strategies need to be adapted even to non-technical fields where students are already assumed to possess soft skills.

Similarly, even in fields where some communication skills, verbal and written communication skills, and presentation skills are taught, consideration should be given to introducing listening skills and interpersonal/intercultural awareness into the curriculum. These proficiencies tend to be overlooked in all but a handful of sectors (for example, social work, management or education), but are broadly applicable in the modern global organization. Of course, private training and professional development organizations can also play a role. Since some soft skills are difficult to teach in a formal setting, on-the-job training and development or coaching can help fill in the gaps.

Business and employers

Having expressed a need for employees who possess a variety of soft skills, business leaders and executives represent another important stakeholder group. These leaders have already identified a gap between the skills they need and the skills that recent graduates possess that should be remedied if businesses want to continue to remain competitive in a global economy. Similarly, the views of these leaders demonstrate another troubling gap: the gap in perception of what graduates think they have vs. what employers feel they possess. Organizations such as Environics, the Canadian Chamber of Commerce and the ACCU have already highlighted important skills gaps and a need for soft skills and should continue to offer valuable insights that can guide governments and educational institutions. Furthermore, it is important to note that the specific soft skills requirements in the private sector will vary by industry. Some organizations may be more focused on finding graduates with a high level of intercultural awareness, for example, whereas others may value communication, project management, or problem solving, among others.

Generally speaking, given the importance of soft skills in the private sector, it is vital to continue engaging business leaders so that we can understand their needs and keep ahead of any changes. We recommend that particular attention be paid to larger organizations (+500 employees) since they are noted in the professional literature as being most impacted by the lack of soft skills (Environics, 2014). However, SMEs have a role to play here as well. Many analysts recommend that employers develop deeper relationships with educational institutions, which could lead to opportunities for partnerships, internships, and other experiential learning opportunities (Accenture, 2013; Conference Board of Canada, 2013; Geddes, 2013; Sorensen, 2013). At the very least, employers could clearly state the skills they require while working with educational institutions to ensure that these skills are being taught in the classroom wherever possible (Pelligrino and Hilton, 2012; O’Leary, 2013; Omar, Manaf, Mohd, Kassim and Aziz, 2012). Since access to employees with the right skills is a key driver of economic growth and job creation, attention should be directed to ensuring Canadian businesses have access to individuals with well-rounded skill sets.

Other stakeholders

Within the literature there are many professional and community organizations with specific interests in the development of soft skills. Organizations involved in accrediting professions (such as engineering, teaching and health care), have an active role in the development and assessment of skills. Organizations that serve particular communities such as women, immigrants, aboriginal people, and people with disabilities, need to be actively engaged in the question of how best ensure an inclusive strategy addresses the development of soft skills.

Conclusions and future research

There is a lack of consensus about the definition and assessment of “soft skills”, and consequently, there is considerable fragmentation. Moreover, as the

development of soft skills requires a combination of formal education, experiential learning and targeted supports for specific populations (such as immigrants) requires active involvement by a range of stakeholders.

- Stakeholders with interest in soft skills development in Canada include governments, educational institutions (K-12 as well as colleges, polytechnics, universities and private educational institutions), employers and business leaders, and other stakeholders (community groups, professional organizations and organizations representing specific groups).
- There are significant variations in definitions, assessments and approaches between stakeholders.
- Inconsistencies in definitions, fragmentation among stakeholders, and lack of coordination between supply and demand sides of the employment market need to be addressed.

Strategies for soft skills development

Overview

Since research has indicated that the development of soft skills arises out of experiential or on-the-job training, observation and feedback, these types of strategies are best implemented by a variety of the above-identified stakeholders working together throughout the working life of the student/employee to create an environment of continuous development.

There are a range of initiatives and strategies that have been identified to help improve professional skills. Traditional undergraduate programs’ learning goals tend to centre on knowledge outcomes rather than processes (Rosenmann, 1996) and “soft skills” are often taken for granted (Hattie et al., 1996). Some advocate for professional skills mainstreaming throughout undergraduate curricula (Hattie et al., 1996). Some focus on providing targeted online instruction for skills such as social self-efficacy (Francescato et al., 2006) and traditional reading and guest lecture-based pedagogies for broader social context skills (Mohan et al., 2010). Targeted intensive training to close the professional skills gap has also emerged from the research and non-profit sector, including Buildex Edmonton (Buildex, 2015), HRSDC’s Workplace Skills Initiative (HRSDC, 2012) and Ryerson University’s ADaPT Program. Some focus on shared programs involving both universities and employers, notably co-ops and internships (CivicAction, 2014). Many call for commitment from government, industry and educators through investment, career-based training, and coordinated responses to identified shortages (Canada West Foundation, 2014).

Factors affecting the development of soft skills

When asked about skills that students should possess by the time they leave a university program, professors surveyed in 2010 expressed concern that the prevalence of new digital technologies was leading to a decline in the interpersonal skills of their students (Nguyen, 2010). However, there is currently a lack of literature to support this fear, and on the other hand, there is some evidence to suggest that digital technologies can help students build soft skills (Viswanathan, 2009; Nejdil and Tochtermann, 2006). More research is needed to see if widespread use of interconnected mobile communication devices is resulting in a decline of soft skills, or if these technologies can help young people develop some types of soft or professional skills, even if their use results in the decline of others.

There is some recent research relating to the use of games or simulations for the purposes of experiential learning, turning a traditional classroom environment into a place where students are more likely to develop soft skills (Beaubien and Baker, 2004). Other initiatives highlight the role of group and project-related work in classroom learning (Ellis, Bell, Ployhart, Hollenbeck, & Ilgen, 2005). More work can still be completed in this area with respect to classroom learning, the use of simulations, group or project work, and situational judgement tests in professional or workplace-based soft skills training.

Research conducted by professional organizations and others in Canada suggests that employee training programs are a main driver of soft skills development in this country (Conference Board of Canada, 2013; Lerman, 2013, 2010, n.d.; IFF Research Institute, 2012; Hansson, 2007; Cappelli, 2004; Greenhalgh, 2002; Bartel, 2000; Bishop, 1997). This suggests an opportunity for employer-sponsored training or private-public university partnerships, since “Employers cannot assume recent college graduates will arrive on the job with the skills they need; and students want training to develop the skills they need to succeed” (Accenture, 2013, p. 7). In fact, many PHD and MA students are disappointed with the lack of opportunities to develop their research and presentation skills in their graduate programs (Gemme & Gingras, 2006). Employed as a way to ensure that employees have all the skills they need, on-the-job training is also helpful for teaching soft skills in a general sense, since as the literature above shows, soft skills are best learned through experience (Lerman, 2013).

Initiatives to promote the development of soft skills

Recently, the Canadian Chamber of Commerce published recommendations for resolving the skills gap in Canada (2013). They recommended that the SME community and educators work together to address the skills gap, suggesting such initiatives as customizing university education for employers, the provision of employer-sponsored training, and facilitated partnerships to help develop essential skills in those parts of the labor force who do not normally receive this training (i.e., in diverse and marginalized groups).

Conclusions and future research

There are many different initiatives within higher education, and also within various technical sectors such as health care or engineering, to provide professional development in the areas of soft skills, but these need to be adapted and combined with new strategies to meet the needs of social sciences and humanities graduates.

- Soft skills should be thought of as part of cradle-to-grave learning, insofar as they need to be developed at every stage of curricula and beyond.
- A wide range of initiatives have been identified to improve soft skills, but these need to be consistent, maintained over time and evaluated.
- Gaming and simulation in education hold promise for the development of experiential learning opportunities in support of soft skills.
- On-the-job training and situational judgement tests can also be employed both in the classroom and in the workplace to assist with soft skills development.
- Partnerships may be the best way to support soft skills development and sustain it over time. Collaborative, interdisciplinary and cross-sectoral research and training opportunities should be explored at all levels.

Overall Conclusions

While our systematic review of the literature shows many areas where additional research is needed, the body of literature relevant to soft skills and soft skills development is extensive. We analyzed more than 6000 academic articles and policy papers written by governments, professional associations and other stakeholders to address this issue. Our observations include the following:

- The need for soft skills or professional skills is clear. There is a general consensus that soft skills are necessary for continued economic growth.
- There are different definitions of “soft” or “professional” or “essential” skills. We have attempted to categorize the most frequently discussed soft skills here. They include communication skills, critical thinking, problem solving, interpersonal skills/intercultural sensitivity/cross-cultural awareness, team work/working with others, leadership, organizational skills, project management, creative thinking/entrepreneurship/innovation, and ethical reasoning.
- While there is some agreement regarding “essential skills”, the priority ascribed to specific soft skills sets is dependent on the type of organization, as is the case for strategies for measuring, benchmarking and training soft skills.
- A gap exists between what employers perceive that they need vs. what they are getting from new graduates, and also in the assessments of skill levels by employment seekers and employers.
- Clearer and more consistent measurements of soft skills need to be established, as well as benchmarks at each level.
- The lack of consistency in definitions and the fragmentation of stakeholders involved in soft skills development compounds the problem, and more coordination is needed to develop shared expectations and to bridge the gap between supply and demand.
- Because a combination of formal training and experiential learning are required, new techniques (e.g., simulation) hold promise for developing these skills.
- A diversity lens is critical, given the potential for cultural and other forms of bias in the definition and assessment of soft skills.

Appendix 1: Examples of Taxonomies

Skills categories	Soft skills	Jackson & Chapman, 2012; Jackson 2013	Woodward, et. al., 2007	ACER, 2001	ESDC, nd	Stevens and Campion, 1994	AAC&U, 2007	Heckman and Kautz, 2012; Bancino and Zevalkin, 2007; and Andrews and Higson, 2008	Mitchell et al., 2010
Communication skills	Written and verbal communication skills Presentation skills Listening skills	Verbal communication, giving and receiving feedback Public speaking Meeting participation Written communication	Writing ability Public speaking Ability to get a point across	Written communication (language and expression, organization, thought)	Writing Oral communication	Listening, presenting and non verbal communications “social skills indicator (Riggio (1986) linked to leadership Riggio et. al (2003)	Writing and oral communication	Written and verbal communication skills Listening skills	Communication skills
Critical thinking		Pattern recognition and conceptualization Evaluation		Comprehension, analysis and influence, synthesis and evaluation	Thinking Problem solving decision making critical thinking job task planning and organization Use of memory finding information	Cognitive Skills and knowledge – creating thinking, sound decisions, solving problems Spector et. al found that performance correlated	Critical Thinking	Analytical thinking	
Problem solving	Creativity and creative thinking Analytical thinking	Analytical/convergent reasoning Diagnosing		Analysis, interpretation and evaluation of information Translation and organization of information Application of basic quantitative techniques			Problem Solving		Problem solving
Interpersonal and intercultural sensitivity	Interpersonal skills Emotional intelligence Cultural awareness			Interpersonal understanding Insight into the feelings motivations and behaviour of others Recognized how insight should be applied including effective feedback, listening communication negotiation teamwork and leadership				Interpersonal skills and emotional intelligence Cultural awareness	diversity

Team work/Working effectively with others		Task collaboration Team working Social intelligence Cultural and diversity management Conflict resolution	Ability to work in a team		Working with others		Team Work	Ability to work in teams	team
Organizational skills		Goal and task management Time management				Management and Organization- articulating goals, organizing people, monitoring progress and resolving problems		Goals, goal setting and intrinsic motivation	Time management
Professional responsibility		Social responsibility Accountability						Personality traits, such as conscientiousness, self-other orientation or reliability Professionalism Resilience, or the ability to cope with uncertainty	Customer service and business etiquette
Leaderships		Project management Performance management Meeting management Developing others				Leadership/personal relationships skills – negotiate, team environment, provide support, resolve conflict		Leadership	leadership
Project management	Time management Goals and Goal setting Project planning and strategic thinking							Project planning and strategic thinking Time management skills	

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