

# An exploration of employer perceptions of graduate student employability

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## Abstract

**Purpose** – The purpose of this paper is to explore employer perceptions of graduate student employability. This study is novel since existing research focused on employability is largely theoretic, remains focused on defining employability of undergraduates and largely fails to determine employer perceptions of factors that increase or decrease employability of graduate students.

**Design/methodology/approach** – Using a two-phased approach, the authors analyzed 122 employer assessments of graduate students at a Canadian university who completed a work-term with the employer in either 2014 or 2015. The authors also collected individual data (e.g. academic achievement, work experience) from student files at the university. Phase 1 involved an exploratory factor analysis to derive factors influencing employer perceptions of employability. Phase 2 expand on factors identified in phase 1 through assessment of 153 written comments using a critical incident technique.

**Findings** – Phase 1 results demonstrate that professional maturity, soft skills + problem solving, continuous learning and academic achievement secure a positive relationship with employer perceptions of graduate employability. Phase 2 results indicate that employers consider generic skills (time management, working in a team, attention to detail), general mental ability, subject-specific knowledge, willingness to work, attitudes and behaviors, and responsiveness to feedback when assessing employability of graduate students.

**Research limitations/implications** – Collectively, the results of phase 1 and 2 provide a comprehensive awareness of the factors that employers consider when assessing employability of graduate students. Researcher, educational institution, and employer implications are presented.

**Originality/value** – The authors provide a holistic and empirically grounded understanding of employer perceptions of graduate student employability through reviewing quantitative and qualitative indicators of employability from the employer perspective.

**Keywords** Internships, Employability, Work experience, University graduates, Cooperative education, Professionalism

**Paper type** Research paper

## Introduction

Originally derived from a neo-classical school of thought in economics, human capital theory posits that individuals invest in training and education as a source of competitive advantage in the labor market (Becker, 1993). However, as organizations adopt more flexible and dynamic approaches to labor, employers are reluctant to provide remedial training or skills development and individuals must increasingly invest in education to increase employability levels prior to entering the labor market (Rosenbaum, 2002). Education provides productivity enhancing skills that employers value and reward (Bol, 2015) and through education, individuals can increase their relative position among other suppliers of labor. Therefore, higher levels of education (e.g. a master degree over a bachelor degree) signal more competitive skill levels of workers (Becker, 1993). Not surprisingly, the education level of the workforce across Organization for Economic Co-operation and Development (OECD) partner countries has increased significantly since 2000 (OECD, 2017a). Collectively, this suggests that individuals are constantly in a state of competition to maximize their position in the labor market, thereby creating upward pressure on the education system and increasing demands for higher levels of education.



More specifically, while Canada continues to secure the highest adult educational attainment level among (OECD) countries (OECD, 2017b), individuals in Canada increasingly rely on graduate programs (master or doctorate level) to provide a competitive advantage in the labor market (Frenette, 2004) and Canadian employers seek students that have developed diverse skills attained specifically in graduate programs (Artess *et al.*, 2014). In 2015, one of every five Canadian university students were registered in graduate level programs (Statistics Canada, 2016) and graduate program enrollment in Canada increased by almost twice as much as undergraduate program (bachelor level) enrollment (Statistics Canada, 2007). Thus, as individuals are increasingly responsible for their own career and job-related labor market outcomes (Berntson *et al.*, 2006), the high rates of growth in graduate level programs suggests that Canadians in graduate program education seek to secure a competitive advantage over those who have completed undergraduate programs.

Moreover, although employability has been broadly defined as a collection of skills, attributes, and characteristics that employers expect from workers (Lowden *et al.*, 2011), there is a lack of research to indicate how employability may be uniquely defined for graduate students. As detailed later, the skills, attributes and characteristics developed by graduate level students differ than those developed at the undergraduate level, yet the limited empirical studies on employability remain focused on employability of individuals who recently completed undergraduate level education (Finch *et al.*, 2013; Wickramasinghe and Perera, 2010). Additionally, while researchers (e.g. Wickramasinghe and Perera, 2010) identify a need to empirically evaluate and define employability, our understanding of employability remains largely theoretical. Furthermore, even though employers are important decision makers in labor market outcomes, the limited empirical studies on employability focus largely on employee or student perceptions of employability (e.g. Blackwell *et al.*, 2001; Gault *et al.*, 2000).

Accordingly, this research aims to address these research gaps by developing a holistic and comprehensive understanding of how employers define employability for graduate students. To do so, we combine quantitative and qualitative (open ended) survey data collected from employers of graduate students from a Canadian university. This research is organized as follows. First, we briefly explore the existing literature on employability and clearly identify meaningful differences between undergraduate and graduate students. Next, we conduct an exploratory factor analysis (EFA) of 122 work-term evaluations completed by employers to determine the factors that employers consider when evaluating graduate student employability. Following that, we use the critical incident technique (CIT) to theme additional qualitative employer comments in order to identify additional factors that are important to employers but remain uncaptured in the survey. Through inclusion of the qualitative comments, we develop a comprehensive awareness of factors that impact employer perceptions of graduate student employability. Subsequently, given the exploratory and mixed methods approach to this research, the discussion section further expands on the themes or factors derived from the data analysis in detail, with embedded research implications. Lastly, noteworthy implications to educational institutions and employers are presented. Overall, the results advance our understanding of how employers define employability of graduate students.

### Literature review

The literature regarding employability factors remains largely theoretical/conceptual or based on limited empirical studies (Wickramasinghe and Perera, 2010). Conceptual models generally adopt a broad definition of employability, focused on either the individual competencies or employment outcomes. For example, Lowden *et al.* (2011) define employability broadly as the collection of skills, attributes, and characteristics that employers expect from workers. In this research, we align most with Lowden *et al.*'s (2011) definition of employability since it includes

a broad range of factors that collectively define employability at the individual level and links employability to labor market perceptions by clearly considering employer expectations from workers. Given the breadth of this definition, we believe that aligning with this definition will provide the most inclusive approach to identifying factors that employers consider important to graduate student employability.

Conversely, De Vos *et al.* (2011) and Hillage and Pollard (1998) view employability in relation to employment outcomes. De Vos *et al.* (2011) conceptualize employability as “the continuous fulfilling, acquiring or creating of work through the optimal use of competencies” (p. 438) and Hillage and Pollard (1998) define employability as the ability to find and retain employment. We posit that while labor market outcomes are an important indicator of employability, these definitions fail to capture the combination of factors that lead to one individual being perceived as being more or less employable than another.

Alternatively, Knight and Yorke (2002) develop a pedagogical framework of employability, suggesting that understanding, skills, efficacy beliefs and meta-cognitions inter-connect to represent employability, while Dacre Pool and Sewell’s (2007) conceptual model of employability suggests that career development learning, experience, degree of subject matter expertise, generic skills, and emotional intelligence interact to develop student perceptions of self-efficacy, self-confidence, and self-esteem (which collectively increase students’ perceptions of their own employability). Both theoretic models provide an interesting group of skills, attributes or characteristics that may influence how employability is defined, but essentially, limit our exploration of employability to the pre-determined factors selected. Thus, research on these models may fail to provide a holistic understanding of employability. Additionally, Dacre Pool and Sewell (2007) model employability from the student perspective, rather than the employer perspective.

The lack of consensus on the definition of employability is exacerbated by the lack of empirical studies identifying or validating factors of employability. The limited empirical studies are largely focused on defining employability based on undergraduate student perceptions. For example, Blackwell *et al.* (2001) aimed to define employability from the employee perspective, surveying 1,176 undergraduate students from a British university (six months after graduation). The researchers explored participants’ perceptions of the match between their self-reported knowledge, skills, and qualities against the participants’ perspective of what the employer requirements were. The results indicate that participants believe that teamwork, motivation, problem solving, oral communication, and previous work experiences are factors important to employer perceptions of employability. Similarly, Gault *et al.* (2000) also attempted to define employability in terms of employment outcomes by surveying 223 School of Business undergraduate alumni who graduated less than 5 years ago. The results demonstrate that undergraduate alumni perceive that their career success (as measured by entry level job salary) benefitted the most from leadership/teamwork, oral presentation skills, problem solving skills, analytical skills, relationship building abilities, and written communication, indirectly suggesting that these skills or abilities increase employability of recent graduates. However, both of these studies defined and evaluated employability from the employees’ perception of employers’ value judgments, thus the survey participant selection was problematic. This critical research methods flaw raises doubts about the validity of the results.

Only three studies explore how employers define employability using a sample of employers, however, these studies remain focused on undergraduate students. Wickramasinghe and Perera’s (2010) survey of 26 employers indicates that employers evaluate positive work attitude, working as a team member, learning skills and self-confidence as the top skills when evaluating employability of undergraduate students. In comparison, Finch *et al.* (2013) conducted 30 interviews with hiring managers and others who influence the selection process, consolidating the qualitative results to 17 employability factors. As a second stage of their

research, Finch *et al.* (2013) validated the employability factors and developed higher-order classifications based on a subsequent quantitative survey of 115 employers. The results indicate that employers have five higher-order classifications of employability, specifically; soft skills, problem solving skills, functional skills, pre-graduate experience, and academic reputation.

In a comprehensive study, Rosenberg and colleagues (Rosenberg *et al.*, 2012; Heimler *et al.*, 2012) triangulate recently graduated students, professors and human resource managers perceptions to develop an multiple stakeholder awareness of how employability skills predict career advancement potential of undergraduate students. In the first of two studies, Rosenberg *et al.* (2012) identified that students, professors and human resource managers have differing perceptions of the factors of employability. Specifically, students demonstrate that work ethic and leadership skills are most needed, followed by critical thinking skills. Professors identified that interpersonal skills, followed by work ethic and leadership skills are most needed, and human resource managers identified that literacy-numeracy skills, followed by work ethic and leadership skills are most needed. In the second study, management skills, leadership skills and basic literacy-numeracy skills were found to be statistically significantly and positively correlated with perceptions of career advancement potential (Heimler *et al.*, 2012).

Clearly, while these studies make important contributions to our understanding of employability, they have been exclusively focused on undergraduate students or those who have recently completed undergraduate programs. Therefore, our research is novel in that we aim to provide evidence regarding how employers define employability of graduate students. This gap in the literature is noteworthy given that undergraduate and graduate programs and students are different in meaningful ways related to employability (skills, attributes, and characteristics), as discussed below.

#### *Differentiating undergraduate and graduate programs and students*

Pedagogically, undergraduate and graduate programs are different. According to the United Nations Educational, Scientific and Cultural Organization's (UNESCO) International Standard Classification of Education (ISCED) (UNESCO Institute for Statistics, 2012), bachelor level programs are entry level programs at the university, focused on developing a breadth of knowledge in a broad subject or grouping of subjects (e.g. Bachelor of Arts, Bachelor of Science). They are typically both theory-based and practice-oriented, and are informed by both research and professional best practices. Generally, a bachelor program involves completion through coursework. Comparatively, master level programs are designed to provide advanced academic or professional knowledge compared to bachelor programs. Although master programs can have either a professional or academic orientation, they are typically focused on developing a depth of knowledge in a specific subject matter, and often have a substantial research component. These programs involve a relatively equal mix of coursework and independent research completion. In comparison, doctorate level programs focus on advancing and studying original research, and are generally offered by research-oriented universities. These programs can include limited or no coursework. Instead, students focus on independent or small group research with varying levels of supervision. Aligned with the UNESCO ISCED, in Canada bachelor programs require completion of secondary education (high school) and are three to four years in duration. Masters programs require completion of a bachelor program and are one to three years in duration, while doctoral programs require completion of a master degree and are generally three or more years in duration (Government of Canada, 2016).

As alluded to earlier, research indicates that graduate students are different from undergraduate students in several meaningful ways including resilience, learning approaches, and maturity. Regarding resilience, Wyatt and Oswald's (2013) study of 27,387 students in 57 universities indicates that graduate and undergraduate students differ

on academic classification, stress capacity and mental health. Undergraduate students report higher rates of difficulty dealing with uncertainty and difficulty handling negative situations (e.g. academic decline, death of a loved one, financial strain, personal health issues, etc.) than graduate students. However, graduate students reporting over 50 percent more difficulty dealing with career-related uncertainty than undergraduate students. Combined, this suggests that graduate students are more resilient, but also more focused on career-related uncertainty than undergraduate students.

Regarding learning approaches, graduate students largely approach learning as active participants in the learning process with a kinesthetic (learn by doing), holistic, self-learning approach, while undergraduate students generally approach learning as more passive participants focused on auditory learning (learn by listening), surface level approaches with the perception that learning occurs mostly in academic environments (D'Amore *et al.*, 2012; Samarakoon *et al.*, 2013; Wyatt and Oswalt, 2013). Parallel with the greater focus on a kinesthetic learning, graduate students generally work and volunteer more hours than undergraduate students (Wyatt and Oswalt, 2013). Graduate students also value a deep approach to learning (emphasizing understanding of concepts and related ideas) and a strategic approach to learning (modifying their learning style as required for each course to achieve the highest possible grade) more than undergraduate students (Leite *et al.*, 2010). Aligned with Samarakoon *et al.*'s (2013) suggestion that learning style differences may be partially attributed to the age difference between undergraduate and graduate students, (given that individuals develop self-learning skills as they mature and advance through the education system), Canadian graduate students are (on average) 9.5 years older than undergraduate students (Statistics Canada, 2010).

Collectively, this suggests that research findings defining employability for undergraduate students may not be transferrable to perceptions of employability for graduate students. More specifically, it is plausible that employability of graduate students is uniquely constructed from that of undergraduate students due to noted differences in their skills, attributes, and characteristics, as summarized in Table I. In addition, considering the role of education as a proxy measure for an individual's employability and the growth in graduate level education as a competitive advantage in the labor market, it is important to determine how employability is defined uniquely for graduate students. Thus, modeling employability for graduate students offers a more nuanced understanding of employer perceptions of employability.

## Methodology

### *Sample selection*

Data were collected from 122 employers (direct supervisors) of Canadian graduate students after completion of a work-term (co-operative education), which was a mandatory component

	Undergraduate programs and students	Graduate programs and students
Skills	Broad subject matter expertise developed through coursework	Deep subject matter expertise developed through research
Attributes	Less resilience for uncertainty More difficulty handling negative situations	More resilience to overall uncertainty More career-focused than undergraduate students
Characteristics	Passive and surface level approach to learning (auditory, segmented, synchronistic learning) Learn in academic environments	Active and strategic approach to learning (kinesthetic, holistic, self-learning) Integrate learning with non-academic environments (e.g. volunteer and work more)

**Table I.**  
Differences between undergraduate and graduate programs and students

of their graduate program. The Master of Science program required 12 months (three terms) of full time study, with a required work-term in the last four months of the program. Employer feedback was collected at the end of the work-term through a questionnaire developed by the Arts and Science Co-operative Services office, therefore this research uses a *post-hoc* sample. Two cohorts were used in the sample, representing work-terms completed in 2014 or 2015.

Admission criteria for the graduate program was competitive. A graduate program admissions committee assessed undergraduate grade point average (GPA), work experience indicated on student resumes, a statement of intent and multiple external references. Average entry GPA was 86.45 percent (range: 78.66-93.22 percent) and 17.20 percent of students secured some form of a scholarship (e.g. academic, athletic, etc.). Average years of work experience upon entry was 2.04 years (range: 0-11 years). The employers were all in Ontario, Canada. Based on the North American Industry Classification System, 42.62 percent of students were employed in the professional, scientific and technical services industry, 31.21 percent in the public administration industry, 10.66 percent in both the agriculture, forestry, fishing and hunting, as well as the other services (except public administration) industries, and 4.92 percent in the education industry. The remaining students were employed in organizations operating in various other industries.

### Measures

Employers assessed graduate students using a two-page questionnaire developed by the university, therefore this survey uses a *post-hoc* sample. The first page required employers to identify work-term performance along 16 items using a five-point Likert scale (1 = demonstrated poorly and 5 = demonstrated exceptionally). The items included written and verbal communication, interpersonal skills, problem solving skills, creative thinking, leadership skills, adaptability, the quality and quantity of work the employee completed, employee level of interest and initiative, demonstrated organization and planning skills, dependability, response to supervision, demonstrated judgment and the employees demonstrated aptitude for learning.

After completing the above survey items, employers were required to identify overall student employability on a six-point scale (1 = low and 6 = high).

In the next section of the questionnaire, employers provided open ended qualitative identification of the employees' "three areas for professional development" (weaknesses) and "three areas of professional strength" (strengths).

To complement information collected in the questionnaire, individual academic achievement (GPA) and previous experience (years of work experience prior to the work-term) was collected from student files at the career services centre.

### Data analysis phases

We adopted a two-phased mixed model approach to data analysis in order to create a comprehensive awareness of factors of employability from the employer perspective. Phase 1 was quantitative, involving an EFA of 16 items, employability, academic achievement and previous work experience outlined in the measures section. EFA is the appropriate method since it is used when researchers want to derive information about factors that influence a dependent variable from the existing data (Creswell and Clark, 2018). Thus, EFA is used when researchers do not hypothesize any specific expectations regarding the nature and relationships of underlying constructs or factors. Accordingly, we conducted an EFA using principal components extraction with a promax rotation of the factor loading matrix to examine the relationship among the employability factors. The Kaiser-Meyer-Olkin test revealed sampling adequacy ( $KMO = 0.722$ ) and the Barlett test for sphericity identified minimal correlation among values, further indicating that EFA was appropriate for these data.

Next, to complement the results of phase 1, phase 2 was qualitative and we categorized the comments provided in the open-ended section of the questionnaire to identify additional factors that employers considered when evaluating graduate student employability. In colloquial terms, participants freely identified additional factors they considered when evaluating the employee, and were not limited to the pre-selected set of factors in the questionnaire. Thus, phase 2 extends our understanding of factors of employability by identifying other items that are important to employers but not in the existing survey. These comments were themed using a CIT. CIT is a commonly used effective qualitative research methods tool for exploratory and investigative research (Butterfield *et al.*, 2005; Flanagan, 1954). Observations of behavior by an appropriate observer (in this case, the supervisor) are indicated in positive or negative statements and each statement is viewed as a single critical incident (Flanagan, 1954). Data analysis of CIT involves experts or judges categorizing critical incidents into themes, allowing researchers to build a complex, holistic view of a topic.

## Results

### *Phase 1: quantitative analysis using EFA*

To establish underlying dimensions of graduate students' employability, we performed an EFA (as per Table II). We labeled the first factor as professional maturity due to the high factor loadings by the following five items: quality of work, interest and initiative, organization and planning, dependability, and response to supervision. This factor explained 56.17 percent of the variance in the scores for employability. The second factor derived was labeled soft skills + problem solving because interpersonal skills, written communication, adaptability, leadership, judgment, quantity of work, verbal communication, and problem solving loaded onto it. Thus, adding the second factor explained an additional 11.47 percent of the variance. Finally, we labeled the third factor as continuous learning, and this factor accounted for an additional 4.56 percent of variance. Collectively, the three factors derived in Table II account for 72.20 percent of the variance in the employability score assigned from employers to graduate students.

Next, we calculated a collective factor score for each of the three factors derived above using a sum of raw scores corresponding to all items loading on the factor (DiStefano *et al.*, 2009). For example, for professional maturity we added the scores for quality of work, interest and

Item	Factor loadings		
	Professional maturity	Soft skills + Problem solving	Continuous learning
Quality of work	0.88		
Interest and Initiative	0.72		
Organization and planning	0.69		
Dependability	0.56		
Response to supervision	0.52		
Interpersonal skills		0.85	
Written communication		0.52	
Adaptability		0.50	
Leadership		0.46	
Judgment		0.46	
Quantity of work		0.45	
Verbal communication		0.44	
Problem solving		0.49	0.44
Creativity/resourcefulness			0.57
Aptitude for learning			0.34
% of variance	56.17	11.47	4.56

**Table II.**  
Summary of  
exploratory factor  
analysis for factors  
related to  
employability

initiative, organization and planning, dependability, and response to supervision. After determining factors of employability using the EFA, we evaluated the relationship between the three factors and academic achievement, work experience and employability (recall that the last three variables were defined in measures section).

Table III provides the associated descriptive statistics, correlations, and reliability estimates for the data. The item column indicates how many items were amalgamated to represent each factor. The mean represents the average score for the factor. For example, professional maturity was calculated using five items with a maximum of five points per item. The mean indicates that employers have a relative high rating of graduate student professional maturity (21.81 out of 25). Alternatively, soft skills + problem solving secured a relatively low rating, with a mean of 21.04 out of 35 (seven items with a maximum of five points per item).

Correlation coefficients are provided in the cells intersecting two different factors. For example, 1 represents professional maturity and 6 represents employability. Therefore, the cell intersecting factor 1 and 6 identifies that professional maturity and employability are strongly correlated ( $r = 0.86, p < 0.01$ ). In addition, a positive correlation demonstrates that an increase in one factor is associated with an increase in the other factor, while a negative correlation indicates that an increase in one factor is associated with a decrease in the other factor (Creswell and Clark, 2018). The results demonstrate that professional maturity, soft skills + problem solving, continuous learning, and academic achievement secure a statistically significant positive relationship with employability ( $r = 0.86, 0.79, 0.76$ , and  $0.44$ , respectively;  $p < 0.01$ ). Professional maturity is also positively correlated with soft skills + problem solving, continuous learning, and academic achievement ( $r = 0.84, 0.73$ , and  $0.32$ , respectively;  $p < 0.01$ ). Interestingly, previous work experience is uncorrelated with any factor.

*Phase 2: qualitative analysis using CIT*

Next, through analyzing open-ended comments, this research further aims to provide a comprehensive understanding of the factors of employability of graduate students from the employer perspective. First, three judges (one final-year undergraduate student, one second-year PhD student, and one professor) identified comments already captured in the quantitative portion of the questionnaire. Recall, phase 1 captured how well the employee demonstrated that factor on a detailed Likert scale, while phase 2 assessed if the factor was considered as a strength or weakness by employers. Given that phase 1 provided more detailed information about the factors surveyed, comments associated with factors already captured in phase 1 were excluded from further analysis in phase 2 to eliminate double counting. Once we excluded these comments, 153 comments remained (91 strengths and 62 weaknesses). Thus, to develop a holistic model, the judges categorized the remaining comments to determine themes/factors that impact employability perceptions beyond what was captured in the survey (phase 1). Commonly, the results of data analysis in the

	Items	Mean	SD	1	2	3	4	5
1. Professional maturity	5	21.81	3.36	(0.92)				
2. Soft skills + problem solving	7	21.04	3.39	0.84**	(0.87)			
3. Continuous learning	3	12.37	2.14	0.73**	0.79**	(0.81)		
4. Academic achievement	1	86.45	3.84	0.32**	0.36**	0.30**		
5. Work experience	1	2.04	0.89	0.01	-0.09	-0.04	0.00	
6. Employability	1	4.38	0.79	0.86**	0.79**	0.76**	0.44**	-0.05

Notes:  $n = 122$ . Diagonal elements in parentheses are the Cronbach's  $\alpha$ . \*\* $p < 0.01$

**Table III.**  
Descriptive statistics  
and correlation  
coefficients of  
proposed  
employability  
categories



CIT (as a qualitative research method) are the self-descriptive titles and sample narratives of the themes or categorizations. We provide these in Table IV.

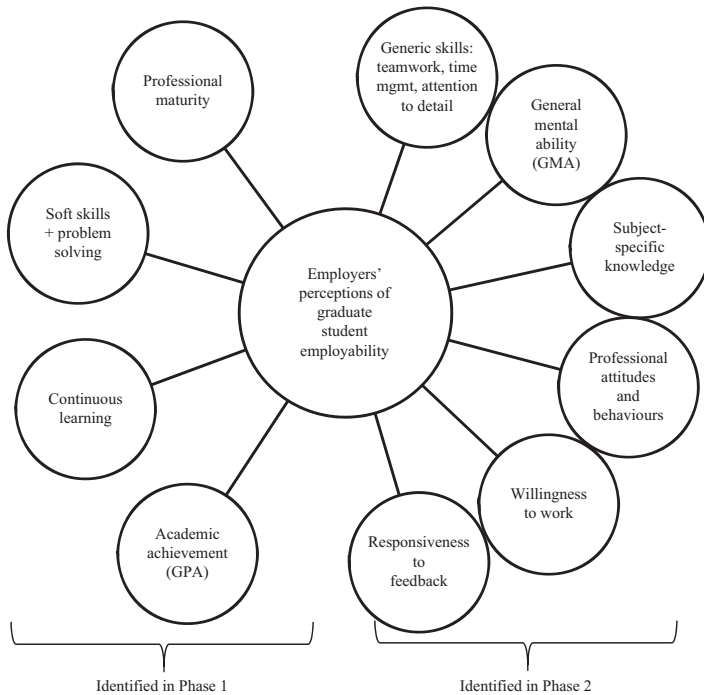
Evidently, all categories resulted in comments from both comments identifying strengths and weaknesses indicating that employers recognize/note the presence or absence of these factors when evaluating graduate students (even without prompting about these skills, abilities or characteristics). Aligned with Pegg *et al.* (2012), we found that three themes were associated with a broad category commonly referred to as “generic skills”; time management, working in a team, and attention to detail. Coding of the remaining comments resulted in identification of five themes; general mental ability (GMA), subject-specific knowledge, willingness to work, attitudes and behaviors, and feedback loops. Beyond the qualitative indication of the themes, in parenthesis beside the category name we provide the percent of remaining comments that were themed into each category. For example, 13.25 percent of the 153 comments were coded as reflecting the theme of time management.

### Discussion and implications

Collectively, the results provide a comprehensive and holistic understanding of employer perceptions of factors of employability for graduate students, as identified in Figure 1. Through phase 1, we identified that professional maturity, soft skills + problem solving, continuous learning and academic achievement are positively correlated with employer perceptions of the employability of graduate students. Through phase 2, we identified that employers also consider generic skills (time management, teamwork and attention to detail),

Comments identifying strengths	Comments identifying weaknesses
<i>Generic skills (time management, teamwork and attention to detail)</i>	
Time management (13.25%) “fast at completing work”, “focuses on speed of tasks”, “adeptly managed her time to complete assignment”	Inability to “balance outgoing personality with ensuring own work”, ensure that “work of others is not interfered with”
Working in a team (7.95%) “team players”, “fit in with the team”	Need to “increase [their] ability to collaborate”
Attention to detail (7.95%) “detail oriented”, “pays attention to detail”	“Attention to detail is lacking”, “needs improvement with attention to detail”
<i>General mental ability (18.54%)</i>	
“intelligent”, “logical”, “good memory” “strong analytic aptitude”	The need to focus on “developing critical thinking” or “understanding of context and scope”
<i>Subject-specific knowledge (12.66%)</i>	
“application of scientific knowledge”, “shows potential to show proficiency with entomological and ecological concepts”	A need for broad skills such as “general business approach”, “conflict mediation”, “project management”
<i>Willingness to work (11.26%)</i>	
“keen”, “willing to pitch in and help as required”	Needs improvements with “staying on task”, “be more forthcoming with ideas for institutional improvement”
<i>Professional attitude and behaviors (17.88%)</i>	
“positive”, “sincere”, “infectious”, “dedicated”, “hard working”, “diligent”, “resilient”	Poor “conduct during meetings”, “integrity” or “attentiveness to business communication”
<i>Responsiveness to feedback (7.95%)</i>	
“accepting feedback”, “wasn’t afraid to ask questions or seek clarification”, “responsive”	A need to “solicit feedback”, “improvement in receiving constructive criticism”

**Table IV.**  
Additional factors influencing employer perceptions of graduate student employability



**Figure 1.**  
A comprehensive  
model of employer  
perceptions of  
graduate student  
employability

GMA, subject-specific knowledge, professional attitudes/behaviors, willingness to work, and responsiveness to feedback when evaluating graduate students.

Aligned with the common reporting of exploratory research or the mixed methods approach, the following discussion specifies how the results help to expand or explain the factors derived from the data more thoroughly (Creswell, 2013). Implications for research are embedded in the discussion of each theme, however implications of this research to educational institutes and employers are discussed independently.

#### *Professional maturity*

Professional maturity is the leading factor employers assess when evaluating graduate student employability (accounting for 56.17 percent of the variance in phase 1, as per Table II). These results align with findings that employers value professional maturity among undergraduate students (Finch *et al.*, 2013; Wyatt and Oswalt, 2013). Therefore, individuals who demonstrate professional maturity (e.g. high quality of work, initiative, interest, etc.) benefit from positive employer perceptions of employability, regardless of level of education. This suggests that professional maturity is a consistent core employability factor and should be included in future research on employability.

#### *Soft skills + problem solving*

There are two noteworthy results regarding soft skills + problem solving. First, while Finch *et al.*'s (2013) research differentiates problem-solving (adaptability, leadership skills, and creativity) from soft skills (interpersonal skills, written communication skills, verbal communication skills) for undergraduate students, the results of this study indicate that employers amalgamate these two categories when assessing graduate student employability.

Second, while soft skills are the dominant factor in models of undergraduate employability perceptions (e.g. Finch *et al.*, 2013), soft skills + problem solving only moderately influence employer perceptions of graduate student employability (accounting for 11.47 percent of the variance in phase 1, as per Table II). Collectively, these two findings provide support for our argument that employability is uniquely defined for graduate students and further validate the use of EFA rather than confirmatory factor analysis in phase 1 of this study.

### *Continuous learning*

Continuous learning is the third factor that influences employer perceptions of student employability (accounting for 4.56 percent of the variance in phase 1, as per Table III). This result supports the broad notion advanced in our research which suggests that individuals are increasingly responsible for development of their human capital and an individuals' investment in their own learning is recognized positively by employers. Furthermore, this indicates that employers view co-op students as both employees (contributors to organizational outcomes) and students (focused on learning).

### *Academic achievement and GMA*

The results of this research indicate a positive correlation between academic achievement and employer perceptions of graduate student employability (as per Table III). Moreover, graduate students have relatively high academic achievement, validated with the high levels of entry GPA reported in our sample. Comparatively, in phase 2, GMA forms the largest category of comments made by employers (18.54 percent of uncoded comments, as per Table IV). Research over the last century has consistently provided evidence that GMA defined as tenable psychometric definition of intelligence (Spearman, 1904) is a predictor of both occupational level attained and job performance, more so than any other ability, trait, or disposition (Schmidt and Hunter, 2004). The results indicate a need for inclusion of GMA as a factor employability in future research. Although, traditionally, without exposure to students, employers relied on GPA or standardized test scores as a proxy for student abilities (Brown and Campion, 1994). As employers gain exposure to employees over time, it is plausible that the impact of GPA is mitigated. Accordingly, the impact of GPA on employability may vary based on an employees' tenure with the organization. Therefore, future models of graduate student employability should incorporate both GMA and GPA to further investigate this relationship.

### *Generic skills*

Bennett *et al.* (1999) define generic or transferable skills as skills that can support study in any discipline and have the potential to be transferred to a variety of higher education and workplace contexts. Similarly, the Pedagogy for Employability Group summarized 25 years of research and demonstrated that a broad consensus exists on 14 factors identified as generic skills that contribute to employability (Pegg *et al.*, 2012). While the survey used in this study asked respondents to numerically assess graduate students on a limited number of generic or transferrable skills (e.g. oral or written communication, aptitude for learning, creativity, dependability, adaptability, planning and organizing), a number of comments in phase 2 identify an additional category reflecting generic or transferrable skills. As detailed below and aligned with the sub-factors identified by the Pedagogy and Employability Group, we themed generic skills into three sub-factors; time management, working in a team, and attention to detail.

### *Time management*

An increased pace of life creates pressure to accelerate and compress actions. Time management is defined as a process of determining needs, setting goals to realize these needs, prioritizing and planning activities required to achieve these goals (Claessens *et al.*, 2007),

or more simply a means to monitor and control time (Eilam and Aharon, 2003). Time management accounts for 13.25 percent of the uncoded comments (as per Table IV), however none of the existing model of employability include this factor. Thus, employability models may benefit from exploring the concept of time management for graduate students, including three possible framings. Effective time management may be an independent factor, it may be manifested in outcomes such as organization and planning (which are included in existing models of employability, i.e. Finch *et al.*, 2013), or it may be a sub-factor under the broader category of professional maturity.

#### *Teamwork*

Although less than 8 percent of the comments in phase 2 indicated that teamwork was a core factor of employability for graduate students (as per Table IV), research regarding undergraduate employability suggests that undergraduate students perceive that their career success benefits significantly from teamwork skills (Gault *et al.*, 2000), that teamwork is a factor important to employer perceptions of employability (Blackwell *et al.*, 2001), and that employers evaluate an individuals' ability to work as a team when assessing employability (Wickramasinghe and Perera, 2010). The relationship between work readiness and teamwork skills has been advocated internationally for decades (Dunne and Rawlins, 2000). However, the results of our research indicate that teamwork is a noteworthy consideration in employer assessments of graduate student employability, and should be included in future research.

#### *Attention to detail*

Employers indicate that attention to detail demonstrated by graduate students is a factor worth highlighting. O'Reilly *et al.* (1991) identify attention to detail as a core factor to individual perceptions of organization culture, and propose that attention to detail includes precision of work and rule orientation. Often job seekers identify "attention to detail" on their resumes, clearly indicating that they are aware that attention to detail is a core factor of employability from the employers' perspective, however this factor is missing in existing models of employability. Future research can examine attention to detail as either an antecedent to quality of work (a sub-factor of quality of work) or a standalone factor.

#### *Professional attitudes and behaviors*

Employee attitudes stem from their evaluation of an entity or situation, while behaviors consist of observable actions (Fishbein and Ajzen, 1975). The relationship between attitudes and behaviors is largely predicated on the notion of consistency. If an employee holds a favorable attitude toward the company, team or unit, behavior toward the entity should also be favorable. Our results in phase 2 indicate that employers made comment about how an employees' sincerity, thoughtful attitude, and resilience were notable employee strengths, while suggesting that poor conduct during meetings and integrity were notable employee weaknesses (as per Table IV), suggesting that employers evaluate broad attitudes and behaviors when assessing employability.

#### *Subject-specific knowledge*

Although employers were not asked to evaluate subject-specific knowledge in the phase 1 questionnaire, the results from phase 2 suggest that employer perceptions of graduate student employability are influenced by subject-specific knowledge. Aligned with this, Dacre Pool and Sewell (2007) include subject-specific knowledge as a core component of employability among undergraduate students. Similarly, Finch *et al.* (2013) found that 28 out of 30 interviewees identified job specific functional skills as criteria for employability.

Blackwell *et al.* (2001) suggest that for subject-specific expertise, technical skills must coincide with industry needs. For example, an individual seeking employment in a financial audit role must have subject matter expertise in accounting. Therefore, while subject-specific knowledge is a consideration in employer perceptions of graduate student employability, the type of subject-specific knowledge would vary by job or role.

### *Willingness to work*

In phase 2, the judges recognized willingness to work as a core theme, unique from initiative (which was a sub-factor in professional maturity). These are both proactive employee behaviors, initiative reflects extra-role behaviors including going well beyond customary job requirements (Campbell, 2000). The comments themed under willingness to work (as per Table IV) demonstrate a requirement to meet (not exceed) basic work requirements. Thus, it appears that at a fundamental level, employers need assurance of a graduate students' willingness to contribute to basic in-role tasks. Similarly, much of the literature regarding generational values at work identifies variation in the willingness to work among employees as a core variant among employees (Lyons *et al.*, 2015). Graduates entering the workplace in Canada are predominantly comprised of the Millennial generation or Generation Y (those born after 1980) (Lyons *et al.*, 2015). This generation has been defined as narcissistic, with a high sense of entitlement (Ng *et al.*, 2010), and this stereotype appears to be manifested in employers qualitative statements about graduate students, thus should be included in future models of employability.

### *Responsiveness to feedback*

Employers expect graduate students to engage in the feedback loop as part of their experiential learning (accounting for 7.95 percent of uncoded comments, as per Table IV). Graduate students' failure to solicit or respond to feedback is detected by employers and employers recognize the disengagement from feedback as a noteworthy weakness. However, responsiveness to feedback is conspicuously absent from existing models of employability and clearly requires further research.

### *Implications for educational institutions*

Higher education institutions offer a work-term component to improve student retention rates (Weisz and Smith, 2005). Accordingly, if one of the goals is to maximize employability post-graduation then curriculum development should focus on aspects that influence employer perceptions of employability, as per this study. Curriculum mapping and quality assurance processes can support alignment of subject-specific knowledge and employability skills. For example, in academic training, students often engage in team based learning including team projects in class or seminar groups, although they are rarely trained explicitly on the processes, roles, tensions or conflict management required for successful teamwork (Dunne and Rawlins, 2000).

However, growth in graduate-level enrollment has exceeded growth in faculty levels, thus class sizes have grown in the last decade in Canada. Therefore, opportunities for developing and assessing these skills might require additionally faculty support (e.g. teaching assistants) or smaller class sizes (to increase student engagement levels). Similarly, professors and course developers must be incentivized and rewarded for achieving established employability objectives.

Furthermore, the results speak to a larger trend regarding data analytics. Often, data collected by educational institutions regarding work-term assessments remain unexplored for diagnostic, feedback, or continual development reasons. Commonly, information collected from stakeholders remains non-digitized or inaccessible. For example, data provided for this

study were initially provided in the form of hand written questionnaires and had to be digitized prior to data analysis. Once digitized, administrative staff in career and co-op related offices may lack the required research methods background or statistical skills for data assessment. Educational institutes should work to develop data analytics processes and competencies in order to provide an evidence-informed approach to decision-making.

Moreover, while Canadian universities are increasingly asked to justify labor market outcomes of students including increases to employability, universities must ensure that the questionnaires developed and used to collect metrics are scientifically informed and valid. The data were collected using a survey developed by the university, indicating a need for a more scientifically grounded survey. Partnership with faculty who specialize in research methods can assist with development of tools (e.g. questionnaires, surveys, etc.) to ensure that surveys collect metrics that are relevant, valid and reliable.

### *Employers*

Clarke (2008) suggests that employability perceptions are dependent not only on individual employee responsibility, but also organizational context. Accordingly, employers can adjust their human resource procedures and policies (e.g. recruitment, orientation, training, compensation etc.) to focus on establishing parameters or expectations of professional maturity, soft skills + problem solving, and continuous learning of those with higher educational attainment. Based on the breadth and depth of the results, employers can benefit from considering employability in its entirety. This can eliminate rater errors or biases and provide a more holistic view of factors that contribute to success at work. For example, our results indicate that employers do not evaluate previous work experience, but focus on subject-specific knowledge when assessing employability specific to graduate students. Therefore, one possible modification to selection tools is that they should minimize the focus on previous work experience and ensure that subject-specific knowledge is assessed.

Work-terms provide a uniquely incentivized opportunity for employers, given the limited, finite term of employment. As employers continue to demand workforce ready employees, work-terms provide an opportunity to assess a potential employee and access highly competitive talent. Therefore, employers benefit from providing timely feedback to students not just at co-op term completion, but also at a midterm point. Organizations may experience improvement in desired behaviors if they are fairly and accurately identified and discussed with students during the employment term.

### **Conclusion**

This study is seminal in that we provide a comprehensive model of employability specific to graduate students from the employer perspective. Professional maturity is the dominant factor considered by employers when assessing graduate student employability (based on a sample of work-term assessments). In addition, employers value soft skills + problem solving, expect engagement in continuous learning and consider subject-specific knowledge and GMA when defining employability for graduate students in Canada. Models for employability focused on graduate students also need to include overall communication, time management, teamwork, attention to detail, acceptance of feedback, and willingness to work to create a holistic awareness of the employability construct.

### **Limitations**

While this research is novel in that it analyses employer perceptions of graduate student employability, the *post-hoc* nature of the assessment limits the results in three ways. First, items were developed by the university stakeholders for primarily internal use. While there was a breadth of topics evaluated, the questionnaire did not map onto any specific employability model.

Therefore, our assessment was somewhat limited to the items pre-determined in the questionnaire, providing a quasi-scientific assessment of employer perceptions of employability. While we overcame some limitations of the survey by evaluating open ended written comments, future researchers can partner with a university to develop a theoretically grounded questionnaire for a confirmatory assessment of employability.

Second, access to comparative undergraduate student files was not provided. Future research can directly compare graduate and undergraduate students in similar programs with similar employment options or competencies (e.g. sciences) to develop a comparative assessment of employer perceptions of employability.

Third, future research can include one on one interviews with employers to further elaborate on the findings (e.g. how was problem solving interpreted?) or confirm the results of the exploratory findings in phase 1 and 2. Universities are often protective of the employer, student and university relationship. They may be hesitant to give access to employers due to a desire to contain the three-stakeholder relationship, perceived privacy expectations of employers or concerns that the investigation may result in employers withdrawing employment opportunities from students or university donations/scholarship. Researchers might consider a partnership with universities to gain access to employers for one on one interviews to add depth to our understanding of employability.

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