Employers' Perspectives on Co-op Student Work Tasks that Support Their Employability Competencies

by

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Abstract

Significant pressure exists to ensure university graduates have the requisite employability competencies to successfully transition into the workforce and co-op programs continue to be a widely accepted approach in helping to achieve this. Despite research that suggests both beneficial outcomes and drawbacks to co-op programs, what is not well known, particularly in Canada, is the approach employers take in supporting student development in co-op programs, particularly as they balance student development, their own resources, and the present needs of their organization. Based on the Human Capital pillar of Clarke's (2018) Integrated Model of Graduate Employability, and an anti-neoliberal perspective, this study created an online survey that investigated employers' perspectives on select employability competencies in four areas: (1) importance, (2) students' performance, (3) frequency of assigned relevant work tasks, and (4) amount of time spent engaged in assigned work tasks. Participants of the study were defined as employers of organizations who had formal co-op partnerships with the University of Manitoba and who had supervised at least two co-op work terms, one of which was in the 24 months preceding data collection. Descriptive analysis found that most employers indicated that co-op students perform well in employability competencies they believe are important for recent graduates, most notably, 'Analytical thinking and problem solving' and 'Concern for order, quality and accuracy.' Similar competencies noted for importance and performance emerged with higher ratings in the number of work tasks assigned and time spent engaged in those work tasks. The overall trend of the data, which emerged through the Likert-type questions and was prominent in the open-ended questions was that, though employers try to balance student needs and interest with organizational goals, they prioritize the needs of the organization.

Keywords: co-operative education, graduate employability, work-integrated learning, employment competencies

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Chapter I: Introduction

Neoliberalism

Today's economy is globally competitive and higher education is a key factor in the development of work-ready graduates, which has fueled an ongoing discourse about the effectiveness, or lack thereof, of universities in graduating work-ready students. This increasing demand for graduates to achieve globally competitive employment competencies provides a clear indication of what society values as educational outcomes (Holmes, 2013, 2017). Neoliberalism is often referenced as the primary factor for emphasizing employment outcomes measured by various indicators for graduates, such as how quickly graduates gain employment after graduation or the economic return on investment of a degree, subsequently determining higher education institutions' success from a government's perspective (Kalfa & Taksa, 2015; Li, 2017; Rothwell & Rothwell, 2017; Tomlinson, 2017). If this trend is ignored, it will continue to place considerable strain on students and universities, who may have other definitions of success, such as the completion of a degree or high levels of student retention from a student or an institution's perspective, respectively (Wood & Breyer, 2017). Neoliberalism is an ideology associated with a free-market approach to education combined with individuals' own accountability for their career success (Harvey, 2007). Its goal is to strengthen the economy and is often facilitated and perpetuated through the prominent human capital perspective towards education. Neoliberal ideology views human capital as an individual's investment in education or training, usually specific to skills or technical knowledge, that will provide a return greater than the initial investment due to increased job performance (Becker, 1994). The emphasis here is that the investment is made by the individual.

One contributing factor in the shift towards, and strengthening of, the neoliberal agenda is the massification of university education, enhanced by growing globalization and student mobility (Li, 2017; Rothwell & Rothwell, 2017; Tomlinson, 2012). Massification of education refers to the wide-spread global access to tertiary education. Globally, enrollment in higher education has doubled from 100 to 200 million between the years 2000 and 2013 (Li, 2017). In 2018, 44% of the population in OECD countries aged 25-34 held a tertiary degree compared to an average of 35% in 2008 (OECD, 2019). In Canada, 54% of Canadian adults aged 25-64 held a tertiary qualification in 2014 which was the highest of any OECD country (OECD, 2015).

Nilsson (2017) highlights that with more people joining the labour market with tertiary credentials, the value of those credentials diminishes because of the increasing numbers of others holding the same or similar credentials. This in turn raises the entry requirements to the labour market, which means individuals' employability must be augmented correspondingly. International student mobility is also growing rapidly from approximately 800,000 in the mid 1970s to over 4.3 million in 2013 (OECD, 2013), which furthers global competition for jobs from those with tertiary qualifications.

Neoliberalism encourages a free market approach to education. It promotes open competition between educational institutions, views education as a product, and ensures competition between students; who may consequently internalize economically-driven discourse around positive return on investment (Tomlinson, 2017). This dominating discourse centres around the capacity of higher education institutions to equip students for the labour market (Tomlinson, 2012). Additionally, neoliberal ideology emphasizes that responsibility is on each individual student seeking or looking to sustain work (Rothwell & Rothwell, 2017) and it benefits employers who are no longer responsible for their employees long-term success. In this model, employers can continue to seek the strongest candidates while reducing spending on employee development as they've been doing over the past two decades in Canada (Borwein, 2014b). Students understand that if they do not add additional experiences and skill building opportunities to their resume, they are less competitive against other students vying for the same roles. This shift in responsibility to the individual has been exacerbated by the governments, who do not see themselves as responsible for job creation or protection and are focused heavily on policy development from the supply-side (Orton, 2011) and because, as Chertkovskaya et al. (2013) suggests,

> the individual's capacity to constantly work on their employability has come to be understood as the crux of national, organizational, and individual prosperity because the state and employers are no longer committed to nor deemed responsible for providing those they govern and/or employ with lasting and secure jobs (p.701).

This association between economic success and advanced knowledge has led to a redefinition of the role of higher education in society that is based increasingly, on economic terms (Li, 2017). This is particularly true with the relative resurge of performance-based funding models for post-

secondary institutions in Canada. In Manitoba, the provincial government aims to launch the new Post-Secondary Accountability Framework in 2023-24 (Government of Manitoba, 2022), following the lead of Ontario and Alberta which are two provinces that have launched performance-based funding models already, despite considerable opposition (Spooner, 2021; Canadian Association of University Teachers, 2020; Ontario Confederation of University Faculty Associations, 2022; Froese, 2022). The primary challenges of performance-based funding models are that the metrics pertaining to employability are generally narrowly defined and can disproportionately affects institutions. For instance, Spooner (2021) notes that metrics such as graduate earnings and graduate employment rates will have a detrimental effect on institutions that have higher proportions of marginalized groups because racialized Canadians are hired less frequently and for less pay.

Tomlinson (2017) also highlights this shift in government approach towards individuals' responsibility and highlights the assumption that students are primarily focused on the economic outcomes of their education.

> Policy level approaches are influenced heavily by human capital theory predicated on the notion that educational systems effectively drive the economy (Tomlinson, 2017, p. 3). It has become common to depict students and graduates as rational economic actors whose primary goals are optimising their future economic outcomes. Increasingly framed as a private good – privately funded, consumed, and utilized for future economic return (Tomlinson, 2017, p. 4).

Rothwell and Rothwell (2017) also highlight examples of public policy that endorsed individuals taking it upon themselves to improve their skills 'appropriate to perceived employer needs', and that of the World Economic Forum (2016) suggesting a diminished shelf life of employees' existing skill-sets. Clarke and Patrickson (2008) note two possible benefits for individuals accepting responsibility to manage their own employability, namely employment security and new opportunities for job satisfaction and self-fulfilment. However, their evidence that individuals have the desire to manage their own career and employability was patchy and many do not have the desire for career self-management; the results were mixed.

The shift in responsibilities is not limited to individuals but has also increased pressures on higher education institutions to deliver adequate 'products'; the products are to be employable

and career-ready graduates (Bridgstock, 2017). Universities have been accused of failing to adequately prepare students with the 'appropriate skills and dispositions' that enable them to add value to the labour market (Tomlinson, 2012) from policymakers (Business Council of Manitoba, 2020; Government of Canada, 2019), employers (Royal Bank of Canada, 2018), and even students who are advocating for tangible outcomes to compete in the global market (NSSE, 2018; Tomlinson, 2012). This has resulted in tighter coupling between higher education and industry, nurturing a state of performativity (Clarke & Patrickson, 2008) but is also subject to national variability (Tomlinson, 2012). Some authors (Bridgstock, 2017; Cranmer, 2006; Jackson, 2016; Rowe & Zegwaard, 2017) go so far as to place employability at the centre of education and placing learners as those responsible for their own learning. Bridgstock (2017) states that "learners can forage within the ecology for task-relevant and up-to-date knowledge, information and connections, and derive meaning from it themselves, with the support and facilitation of teachers" (p. 351), while suggesting "the strategies that we can put into action need to be based on the requirements of the world of work into which graduates will emerge as professionals" (p. 353). It is not only the opinion of some researchers but universities as well can perpetuate the neoliberal agenda with a focus on human capital development as the foundation for graduate success (Clarke, 2018).

The pressure placed on universities for their supposed failings to supply career-ready graduates is most often referenced as a 'skills-gap' in graduates, which is discussed inside and outside of academia (Burning Glass Technologies, 2015; Canadian Chamber of Commerce, 2002; Hodges & Burchell, 2003; Jackson, 2015; Royal Bank of Canada, 2018; Viczko et al., 2019; Zegwaard et al., 2018). While various factors that appear to contribute to the skills gap have been identified, such as insufficient post-secondary participation, lack of experiential training of students, and the need of improved measurements within post-secondary programming, it appears that relatively little is said about addressing these factors or implications for their proposed solutions (Viczko et al., 2019).

However, prior to addressing concerns of a skills gap and its possible solutions, it is critical to have a common understanding of what the skills gap is. A common understanding is important because without it, solutions for addressing the problem can be misaligned, which has typically reinforced the neoliberal ideology. For instance, Borwein (2014a, 2014b) highlights

two key concerns with the current skills gap narrative. First, a consistent definition for the term *skills gap* needs to be established. Borwein notes that the term *skills gap* ought to be defined as job seekers not having the requisite skills for a given occupation, but was often conflated with either a labour shortage (e.g., Business Council of Manitoba, 2020) or what the author suggests is better described as an *experience gap*. An *experience gap* represents the gap between the number of years of work experience employers expect from recent graduates and the number of years graduates can reasonably have accumulated upon graduation (Borwein, 2014a). Borwein (2014a) reported that entry-level job advertisements that indicated 'no experience necessary' was only 24% of the total number of postings. Additionally, Moore and Morton (2017) showcased one Australian example in which the skills gap for written communication was better described as an *experience gap*. Some study participants acknowledged that graduates did need to learn basic skills in literacy in their studies, but they were skeptical of any systematic way for students to prepare for the specific communicative demands of any organization. Differentiating the terms *skills gap* and *experience gap* is important because as has been noted, various stakeholder groups are relying on the term skills gap, instead of experience gap, which can lead to a misrepresentation of current graduates' skills.

The second concern presented by Borwein (2014a, 2014b) is the lack of clear evidence suggesting that a skills gap exists in Canada. She noted that while there are many reports on the 'skills gap' (represented as a combination of the terms *skills gap* and *experience ga*p as has been defined above and that of labour shortages), it appears the majority of those reports focused only on some occupations or some [Canadian] provinces, which limits the generalizability of these findings, and makes it difficult to confirm how much this concern is occurring at a national level.

Additionally, the evidence of a skills gap can be misleading even with an established definition if the measures used to evaluate a skills gap are not suitable. Two examples represent a skills gap using different measures. First, Zegwaard et al. (2018) assumed that comparing a rating for 'importance' of various competencies to that of their 'performance' would indicate whether a skills gap exists in recent graduates. Second, Burning Glass Technologies (2015), defined the skills gap as the 'distance' between the frequency a skill was asked for in a job posting compared to its importance rating.

Stakeholders' Expectations

The above section has provided a brief overview of the neoliberal ideology and its effects on the employability agenda, which places pressure on higher education institutions to focus on graduate employment outcomes as a key performance metric for its success. To provide greater context for the focus on graduate employment outcomes, this section provides a brief introduction to the primary stakeholders of higher education (employers, governments, higher education institutions, and students) and their distinct perspectives on the perceived skills gap in Canada, which are all underpinned by neoliberalism (Viczko et al., 2019).

Employers

Many studies have tried to identify the skills employers are expecting students and recent graduates to have when they enter the workforce (Borwein, 2014a; Burning Glass Technologies, 2015; Coll et al., 2002; Hart Research Associates, 2015, 2018; Hernandez-March et al., 2009; Hodges & Burchell, 2003; Lisá et al., 2019; Moore & Morton, 2017; Zegwaard et al., 2018). In a Canadian context, Borwein (2014a) found that while employers generally advertised for skills and level of education that were in line with their job postings, as mentioned previously, they often looked for years of experience that were not typically in line with entry-level job roles. She noted that only 24% of the postings in the study allowed for no experience and only 2% indicating less than one year of experience. To support the notion that the ongoing skills discourse is relevant, 45% of the 173 job advertisements asked for post-secondary education but did not specify in which field of study was needed, suggesting that universities must be contributing to graduates' employment preparation in other ways than just technical knowledge. This is not a new discovery; the notion that graduates receive more than just technical knowledge from their university years is well researched (Mayhew et al., 2016). Employers may also broadly endorse the belief that universities develop more than just technical knowledge because they are not interested in spending as much time training new employees (Borwein, 2014b).

In a follow up study, Refling and Borwein (2014) noted that 49 of 83 employers (59%) hired a candidate who reported having at least three years of work experience. Though this is not an indication of whether applicants had appropriate skills, it indicates that employers usually choose primarily on the basis of number of years, and not just those with the minimum job requirements. This is confirmed further as the majority of employers in the survey noted that

previous work experience was very important to their hiring decision. Conversely, there are examples that demonstrate employers believe students are lacking in the requisite skills needed to be successful in entry-level jobs (Hart Research Associates, 2015; Hernandez-March et al., 2009; Hodges & Burchell, 2003; Zegwaard et al., 2018).

Government

Government is uniquely positioned to significantly influence the work of universities as they are providing the bulk of its operating budget in Canada. In the Canadian context, education is under the purview of the provincial governments but there is an influence from the federal government due to the distribution of funding from the federal government to provincial governments through Canada Social Transfer payments, which in part is to help fund post-secondary education in the province, among other things. Further, the federal government has purview over economic development and immigration in Canada, which have direct impacts on post-secondary institutions and their priorities. One example is the federal funding provided to Mitacs, a not-for-profit organization that builds partnerships between industry and post-secondary, which directly supports the development of more work-integrated learning experiences and ultimately impacts post-secondary institutions' programming and focus.

Governments tend to focus their attention on return on investment when reviewing the effectiveness of a university education (Holmes, 2013), which means graduates are expected to be 'work-ready' with demonstrable levels of employability (Clarke, 2018). Clarke (2018) also points out that universities focus on human capital as the foundation for graduate success, often using recent graduate employment rates to determine success, while Milley (2016) highlights the continued effort of infusing the economic system with higher education. It would appear as though this is why universities report on their economic contributions in terms of dollar amounts (e.g., Business Council of Manitoba, 2020). Further, this pressure from government leads universities to state their expectations of graduates in terms of career readiness (Business Council of Manitoba, 2020; Rigas & Kuchapski, 2016).

Though it is challenging to find examples in which governments (federal or provincial) explicitly confirm the existence of a skills gap in Canada, there are recent examples that suggest they believe the possibility of one exists. Overall, government perspective appears to align with the perspective of Borwein (2014a, 2014b) in that the evidence of a skills gap is unclear, but an

acknowledgment that the challenges of employers in finding suitable employees may be due to various closely related issues: a skills gap or an experience gap as previously defined; an awareness gap in which students have difficulty articulating the skills they have actually developed during their education; universities producing students with the wrong skills; or employers' lack of understanding of the skills they actually desire from students (Harrison, 2017; Morneau, 2019). It is likely that the challenges of employers in hiring employees with the requisite skills for a position is a combination of these issues. The challenge of understanding the current state of skill development of graduates stems from a lack of direct measurement in the effectiveness of the programs designed to address the perceived skills gap or of how to best teach the desired skills (Weingarten et al., 2018).

Regardless of the limited evidence to pinpoint the root cause(s) of the issue, the Canadian government and its policies have been focused on initiatives that attempt to provide students the 21st century skills sought-after by employers for decades (Viczko et al., 2019). The 2019 federal budget outlined the Canadian government's commitment to ensuring every young Canadian interested in a work-integrated learning opportunity will get one as they believe that "young people recognize that not all skills are learned in the classroom" (Morneau, 2019, p. 50). Further, the Canadian government's commitment to every student wanting to participate in work-integrated learning being able to do so within 10 years, included a $631 million increase of funding to Canada's Student Work Placement Program over five years, because they believe it is a more 'comprehensive approach' to learning (Morneau, 2019). Additionally, the federal government has committed to the new International Education Strategy, which provides support for international work-study opportunities to help develop the requisite skills of the 'increasingly global economy and labour market' (Morneau, 2019).

At the provincial level, there are several examples in which policy focuses on better preparing students with the requisite skills of the workforce. In Manitoba, a key component of the Skills, Talent and Knowledge Strategy of the Economic Growth Action Plan is to align student outcomes to the labour market (Government of Manitoba, n.d.). In Ontario, the Higher Education Quality Council of Ontario recognizes the concerns of employers of the apparent shortcoming of cognitive and behavioural skills, such as literacy, problem solving, and critical thinking (Weingarten et al., 2018). It appears that, similar to the federal government, they avoid

referring to it as a skills gap because the evidence is not clear, but are focused on initiatives that look to enhance student skills as if there is a skills gap (Weingarten et al., 2018). Additionally, both Manitoba and Ontario offer tax credits to organizations that hire co-op students (and graduates of co-op in Manitoba) (Government of Canada, 2020) in an effort to further entice employers to engage in co-op programming.

Higher Education Institutions

Higher Education Institutions are closely coupled to educational outcomes laid out by the provincial governments in Canada, which are also influenced by federal funding. However, higher education institutions have their own approach and viewpoints on myriad of topics, including work-integrated learning and in particular, co-op education. The benefits and shortcomings of co-op programs are discussed in a later section, but a critical note on whether higher education institutions view co-op education as beneficial to students would be the continued growth in co-op program offerings across the Canadian landscape over several decades. Additionally, Universities Canada (2018), for example, is a strong advocate for increased funding for work-integrated learning and the development of workplace skills through work-integrated learning programs remains a priority.

With universities' position that work-integrated learning remains a priority, it is critical that they communicate clearly with program partners of their role in ensuring a student-centric work-integrated learning experience that supports long-term student development in addition to providing value to the program partners. In some work-integrated learning experiences, particularly co-op programs, there can be confusion of the role employers play in the program. As will be noted below, employers at times do not fully understand their role as a supervisor in a co-op program.

Students

Students are key stakeholders and logically expect a return on their investment in higher education (Holmes, 2013; Nilsson, 2017), which is the product of neoliberal discourse. According to the 2018 National Survey on Student Engagement, about 60% of students expect to enter the workforce immediately following graduation and believe that upon graduating they will have improved in various skillsets needed for the workplace; though academic discipline affects the degree in which they perceive their gains. However, there tends to be discrepancy between

employers' and students' perceptions of how work-ready they are (Hart Research Associates, 2015, 2018). The US firm, Hart Research Associates, reported in 2015 that approximately 3 out of 4 students believed that their university or college was doing a good job at developing their skills and knowledge for the workforce versus less than half of employers. Nevertheless, students appear to understand that higher education does not guarantee a job afterwards and that management of their own employability is an ongoing task throughout their careers (Tomlinson, 2007, 2012).

Research Questions

Regardless of how someone perceives the larger context of neoliberalism and its influence on post-secondary education, the discourse about graduate employability remains both timely and relevant for many stakeholders. Further, understanding the most sought-after employability competencies expected of graduates is an important building block for creating effective co-op programs and provides direction on what students should focus on improving during their co-op and subsequently by the time they graduate. While these competencies are often reported as all being highly important, in reality, there is limited time and resources within a co-op work term, which prevents students from engaging in relevant tasks often enough to help them improve in all areas. Additionally, the sought-after competencies continue to change, and expectations vary between employment sectors. For these reasons, continued research into better understanding the broader competencies that employers seek from graduates and the performance of co-op students across many contexts remains relevant. A current representation of competency importance and performance of co-op students allows for investigation into various other components of co-op that will contribute to co-op program design appropriate for the current Canadian context.

One gap that exists is that little is known about the work tasks employers are assigning that support the development of various employability competencies and consequently the amount of time students are spending on these. While it seems logical to assume that for employability competencies that are perceived by employers as more important and students have performed well, that the students have sufficiently engaged in relevant tasks during their co-op term, this alignment between importance-performance-engagement may not be as present as expected. This gap presented an opportunity for the present study to examine a critical part of

the program process, the employers' perspectives on how many tasks that support development of highly sought-after employability competencies are being assigned and the number of hours students spend on developing each competency. The results of this study can be used to inform the creation of a work-term process evaluation tool for employers, students, and co-op administrative staff to help ensure that students are assigned work tasks that consistently align with sought-after competencies, with greater attention to competencies in need of improvement. Co-op program objectives and tasks could then be defined according to the needs of students. This study adds to the research in the field and provides clear direction for the development of a process evaluation tool by focusing on the employers' perspective regarding the importance of student employability competencies and the necessary tasks to foster their development. More specifically, this study will explore the following research questions regarding employers' perspectives of select employability competencies:

1. How important is each employability competency among recent graduates?
2. How well do co-op students perform in each competency?
3. How frequently do employers assign co-op students work tasks that foster the development of each competency?
4. How many hours do co-op students engage in work tasks that foster development in each competency?

The following section provides a theoretical framework for the present study and insight on the varied and expanding conceptualizations of employability to better define the context in which universities operate to meet their mandates of educating employable graduates through work-integrated learning and particularly, through co-op education.

Chapter II: Literature Review

Theoretical Framework

Clarke's Integrated Model of Graduate Employability

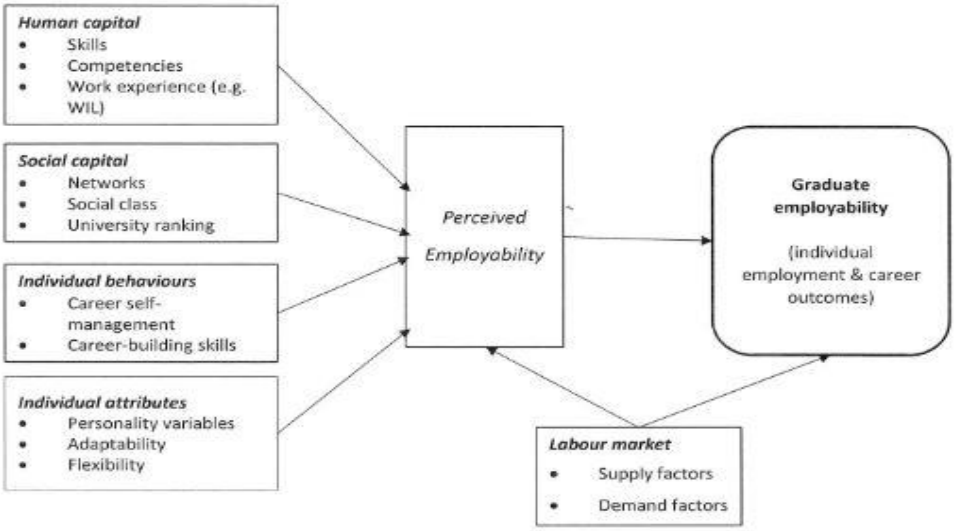
Clarke's (2018) Integrated Model of Graduate Employability (Figure 1) serves as the basis of the theoretical framework for this study that encompasses various dimensions that inform an individual's perceived employability and influences an individual's ability to secure employment. Clarke (2018) highlights a divide in the literature that tends to focus on either graduate employability or broader employability and believes that "current conceptualizations do

not adequately articulate the role of higher education institutions versus that of the individual in developing the skills and attributes that underpin successful employment outcomes" (p. 1924). Graduate employability tends to focus on the individual's skills, attitudes, and attributes (Hillage & Pollard, 1999) and that of social capital and individual behaviours (Holmes, 2013) whereas a broader view includes considerations of various factors, such as personal circumstance or the state of the current labour market.

In Clarke's model, employability is an outcome of an individual's perceived employability and labour market conditions. Within the model, perceived employability is defined by the inputs from human capital, social capital, individual behaviours, individual attributes, and labour market conditions (Clarke, 2018). This model aligns with Holmes (2017) view of employability as a relational concept of factors.

Figure 1

Integrated Model of Graduate Employability (Clarke, 2018)



Clarke's expansion of the employability definition has begun to address some of the concerns about the factors that contribute to an individual's employability but there remains a gap in understanding about what each factor fully entails, how much it contributes to the overall employability of an individual, and to what degree universities can or should support graduates in improving each factor of employability. The following section provides a more detailed

history of employability, which has assuredly been influential to the above Integrated Model of Graduate Employability, beginning with early conceptions of employability.

Employability

Early Conceptions of Employability

Employability is different from *employment* in that employment is a simpler concept, which helps governments in surveying the graduate population on employment outcomes related to important factors such as gender, ethnicity, subject area of study, degree classification, and salary (Holmes, 2013). Employability on the other hand, exists outside of whether a person is currently employed (McArdle et al., 2007) and is a characteristic that can be perceived in many different ways. As explained below, researchers have been unable to agree on a consistent theoretical conceptualization, which would provide a clear definition of employability. Similarly, these varied perceptions make it more difficult to confirm more valid approaches to assessing it.

The emergence of employability and its evolving meaning can be traced throughout the 20th century. It first emerged near the beginning of the 20th century to refer to those willing and able to be employed versus those who were not (Gazier, 2001). By the 1930s, examples appeared in which employability (ability to secure employment) was studied in relation to its connections to test scores, scholastic ability, home environment, and appearance and manner (Heim, 1939). Though each was statistically significant, test scores and scholastic ability were less significant than home environment and appearance and manner, which is an early depiction of the effect of an individual's social-economical position on employability. The 1950s and 1960s focused on employability in terms of 'socio-medical', 'manpower employability', and 'flow employability' (Gazier, 2001). Socio-medical employability focused on the work abilities of persons of social, physical, or mental disadvantage while manpower employability expanded the scope of what could disadvantage an individual in gaining employment, such as not having a driver's licence or having a police record. Flow employability categorized the speed in which different groups of people could attain work. The 1990s first introduced 'initiative employability' which began shifting employability towards a supply side concept in which individuals were responsible for their own career development as discussed in Section 1 and 'interactive employability' which considers the intersection of the individual and the labour market (Gazier, 2001).

Within recent literature, a commonly cited definition of employability is provided by Hillage and Pollard (1999). They frame their definition in the context of shifting responsibility to the individual and the change of public employment policy towards an emphasis on skills-based solutions for economic competition, which remains consistent with current attitudes towards employability today. They define employability as:

> the capability to move self-sufficiently within the labour market to realise potential through sustainable employment. For the individual, employability depends on the knowledge, skills and attitudes they possess, the way they use those assets and present them to employers and the context within which they seek work (Hillage & Pollard, 1999, p. 12).

Presenting Hillage and Pollard's definition here is important because it represents a neoliberal perspective, heavily influenced by human capital, of employability that has been relatively uncontested outside of recent academic research; institutions have continued to expand programming that supports students in building employability but expect that students manage their own agendas.

Spencer and Spencer (1993) believe that developing proficiency of specific skills or behaviours leads to the 'accumulation' of employability competencies (see Appendix A for full competency list), which are defined as an underlying characteristic that is causally related to superior job performance. The authors believe that an underlying characteristic is a 'deep and enduring' part of a person's personality. They continue by arguing that a competency always includes intent that causes action towards an outcome and that proficiency in various competencies can predict behaviors. An example is provided by Spencer and Spencer (1993, p. 13) – if the *intent* of an individual is their motivation for achievement, then the resulting *action* may be goal setting, personal responsibility, or use of feedback, resulting in continuous improvement as the *outcome*. Research on graduate employability had a heavy emphasis on building students' competency near the turn of the century, which generally refers to a broad set of inputs that, when combined, allow for the completion of various tasks resulting in an output (Coll et al., 2002).

Assessment of competency proficiency tends to be more complicated than traditional course-specific technical knowledge, however. For instance, if 'information seeking' was the

competency, then the ability to define problems, apply diagnostic focus, 'look deeper', and apply contextual sensitivity may be the inputs and a well-researched decision would be the resulting output (Coll, Zegwaard & Hodges, 2002). Applying assessment measures to this concept results in various challenges such as quantifying and qualifying what is considered enough information seeking or effective information seeking for any number of tasks. Despite some of the issues with assessment, it was assumed that the enhancement of a broad range of competencies would result in strong employability or *work-readiness*, which at times has been used interchangeably (Rowe & Zegwaard, 2017). Various other terms have also been used to define what is needed to be considered employable or work-ready in place of the term competency, depending on the context of the study such as 'hard and soft skills' (Coll et al., 2002), 'baseline skills' and 'foundational skills' (Burning Glass Technologies, 2015), 'essential skills' (Borwein, 2014a; Refling & Borwein, 2014), 'transferable skills' (Weingarten, 2014), 'characteristics' or 'attributes' (Nevison et al., 2018), and 'vocational' or 'generic skills' (Hernandez-March et al., 2009). Despite these various naming conventions and some relatively minor differences in definition, they are all applicable under the concept of human capital. The present study will use the term *competency* because it is the term Clarke (2018) uses within the human capital component of her Integrated Model of Graduate Employability.

Current Conceptions of Employability

Employability as defined by Hillage and Pollard (1999) in the previous section is one common understanding of employability. However, there exists various definitions. Sanders and de Grip (2004) define employability as a worker's capacity and willingness to remain attractive in the labour market, in which they condense further to succinctly state as 'a worker's labour market value'. Further, Yorke and Knight provide the following definition:

> a set of achievements – skills, understandings and personal attributes – that make graduates more likely to gain employment and be successful in their chosen occupations, which benefits themselves, the workforce, the community and the economy (Yorke & Knight, 2006, p. 3).

McQuaid and Lindsay (2005) suggest employability is the interaction between individual attributes, personal circumstance, labour market conditions, and other 'context' factors. Whereas Jackson (2016) believes employability should be redefined to include the concept of pre-

professional identity, which is “an understanding of and connection with the skills, qualities, conduct, culture and ideology of a student’s intended profession” (p. 926). While these basic definitions can be helpful for a more concise explanation, they often lack the details necessary for a deeper understanding of employability. Holmes (2013) identified three competing perspectives on graduate employability: *possession*, *position*, and *process*, which appears to be the three most prominent schools of thought regarding employability.

Possession refers to the collection of skills and attributes which is aligned with the human capital perspective and accumulation of competencies. While various authors have presented lists of *highly important* competencies from this perspective (Borwein, 2014a; Coll et al., 2002; Coll & Zegwaard, 2006; Jiang et al., 2015; Nevison et al., 2018; Zegwaard et al., 2018), others have criticized the limited scope the human capital perspective has in fully defining employability (Bridgstock, 2017; Holmes, 2013, 2017). Holmes’ primary concern in these studies is that the competency lists are often ‘brainstormed’ and are not the product of recognized and accepted methods that can be deployed in a standardized manner and that the Likert-scale lists elicit opinions from survey responders assuming they hold the same knowledge and understanding of all survey items; and Bridgstock (2017) believes it encourages a superficial ‘tick box’ approach to employability.

Position on the other hand focuses on social structures but largely ignores individuals’ agency as they interact in and between various social structures. Despite the massification of education supporting more people of various social and economic backgrounds to attend higher education, the systems of privilege persist for some groups of people. In some instances, employers use the hierarchy of universities during the hiring process as a screening tool of potential hires (Holmes, 2013) or will consider English language proficiency more valuable than other languages (Hernandez-March et al., 2009). In terms of employment outcomes, some factors that can affect an individual’s success include sex, ethnicity, parents’ education and salaries, age of entry into higher education, and educational institution (Blasko et al., 2002). However, the position perspective on its own can not account for those who succeed despite their disadvantaged position (Holmes, 2013) and therefore should be considered as only one of several factors in an individual’s employability.

Process focuses on identity and developing ways of presenting your claims on the identity. Some examples explore employability through vocational self-concept, which is the holistic development of sense of self related to work (Drewery, Nevison, & Pretti, 2016); perceived employability (Vanhercke et al., 2014), a micro-level psychological perspective focused on subjectivity of the individual; career-management (Bridgstock, 2009); and pre-professional identity (Jackson, 2016). Holmes (2013) believes the *process* perspective to be conceptually and theoretically more robust than the other two perspectives noting that identity is socially constructed through constant negotiation with others and can be used to "develop ways of presenting your claim on the identity in such a way that it stands a good chance of being affirmed by those who make the selection decision on job applications" (p. 551).

Okay-Somerville and Scholarios' (2017) empirical study of the three perspectives showed greater support towards the *process* approach from a career self-management perspective as well as some support for the *possession* perspective related to knowledge, skills, and abilities 'signalled through educational credentials'. While their results showed the weakest support for the position view of employability, they acknowledge this may be because the effects of social background are usually hidden and institutionalized. They concluded that graduate employability should be studied through both the objective (labour market outcomes) and subjective (perceived by individuals).

Tomlinson (2012) acknowledges that employability is related to personal identity and social and economic structures and argues (Tomlinson, 2017) the need for employability to be seen in its wider political and economic context in which it is analyzed through a macro-, meso-, and micro-level. This framework has some similarity to the three perspectives, possession; position; and procedure, highlighted by Holmes (2013) within the meso- and micro-levels but also includes distinct components such as considering the shifts in macro-economics and its effect on graduate employability. The macro-level is concerned with structural, system-level shifts in capitalism and how educational systems are coordinated within that framework. The meso level relates to how individuals' employability is mediated by institutional level processes within educational and organizational domains. The micro level is concerned with the personal level which includes a range of subjective biographical and psycho-social dynamics. Tomlinson

goes further by highlighting employability as a recursive social process, which can be better understood using human, social, and cultural capitals.

In the effort to measure employability, Holmes (2017) asked the following questions, which argue that employability itself is not empirically observable, but rather is a relational concept of factors reflecting actual and anticipated employment outcomes:

1. What are employment outcomes that are salient and how are they measured?
2. What kinds of states of affairs, or set of conditions, might we consider as being significantly related to anticipated and/or observed employment outcomes?
3. How should we understand the nature of the relationship between employability and employment?

While questions 1 and 2 have an immediate connection to each perspective of employability, question 3 is more challenging to grapple with without answers to the first two; but improving one's employability should have a specific relationship with employment. Due to the lack of answers to the above questions, Holmes presses for theory development in understanding both individual's agency (within their control) and structural (outside an individual's control) influences on employability. A more recent conceptualization that does include both is provided by Clarke (2018) in her Integrated Model of Graduate Employability noted above and is elegant in its simplicity and robust in that it acknowledges the various perspectives highlighted throughout this section. In addition to the continued challenge in defining aspects of employability, there remains the ongoing challenge of how universities are supposed to assess employability. There can be significant challenges for assessment which is why research into the field remains critical. The following sections will highlight some of these challenges.

Challenges in Assessing Employability

The challenges in assessing successful development of employability stems from its broad and varied perspectives. The first challenge is that competency definitions continue to evolve making comparing various studies more difficult. Within the human capital domain for instance, 'conceptual thinking' included 'critical thinking' in its definition but was later considered a competency onto its own, whereas the 'creativity' competency was not included in some competency lists until recently (Coll et al., 2002; Zegwaard et al., 2018).

The evaluation of competencies has typically occurred from the human capital perspective and is a limitation in the evaluation of employability for not considering other perspectives. But the second challenge of evaluation, which would likely persist regardless of which perspectives are considered is that there are few defined methods for institutions to assess competencies, especially when employability discourse often includes long lists of expected graduate competencies. For instance, work-integrated learning is widely accepted for developing employability (Donald et al., 2017), which will be further discussed in the following section. However, Von Treuer et al. (2011) raise the concern that few empirical studies inform evaluation methods for work placements, which leads to significant variability between programs' assessment measures. In addition, they promote the use of graduate surveys to measure graduates' satisfaction with their program and their perceived development of various skills rather than testing abilities as might be seen in a traditional classroom setting for program-specific content knowledge. This is likely to cause additional issues as it is not only challenging for students to assess their own development over time (Mayhew et al., 2016) but students may define employability in a narrower lens than academics which would alter the perspective of what is considered successful. While most academic views of employability assume a more complex definition as explained above, there is evidence that students see it as a short-term idea focused on gaining a first graduate position (Bates & Hayes, 2017).

To increase the complexity of the situation, employers at times have expressed conflicting work-integrated learning expectations such as the 'try before you buy' attitude, which frames the students' experience as an audition for employment upon graduation (Jackson et al., 2015) versus employers who view work-integrated learning as a student-centric learning opportunity. The perspective of an employer can significantly influence students' experiences and the extent of their learning. For instance, the 'try before you buy' attitude might place greater value on a student's organizational commitment and technical expertise over their initiative or ability and commitment to learn. This challenge of poorly defined methods of assessing narrow views of employability is exacerbated by the emergence of more robust models of employability such as that of Clarke (2018).

Third, the development of an individual's employability permeates all aspects of an individual's life as any experience can potentially develop useful capital towards employability.

Additionally, a particular experience can support the development of several competencies, and further, various stakeholders maintain different expectations of higher education institutions. For instance, according to Rowe and Zegwaard (2017), curriculum design should place employability at its centre and that employers should have strong links to instructors, assessments and scaffolding of content to support work-integrated learning (Ferns et al., 2019). In contrast, Cranmer (2006) suggests that developing graduate employability within the classroom may not be a viable option due to the ongoing challenges in defining employability and the lack of clear evidence to suggest that integrating it into the classroom has had any independent effect on graduate labour market outcomes. Further, Cranmer suggests that workplace training may still be better suited for ensuring graduates have the requisite workplace-specific knowledge and skills.

Fourth, while institutions can define employability in ways that are most appropriate to their particular contexts, the tightening of government oversight on 'employability outcomes', which are essentially employment outcomes, institutions are likely pressured to tailor their definitions closely to mandated government evaluation measures in which they are accountable. Of course, this challenge is worsened as governments continue to struggle to establish measures that are well-defined and that are not too narrow in regards to all programming offered by universities, such as with work-integrated learning (Yorke & Vidovich, 2014). For instance, the United Kingdom used the Destinations of Leavers from Higher Education Survey (Holmes, 2013), which did not address the complexities of employability such as the influence of graduates' social-economic status, the current state of the labour market, or whether the graduate believed they had they requisite skills and attributes for their workplace (or desired workplace). Further, the survey provides a single snapshot of employment at a specific point in time. In 2018, they switched to the Graduate Outcomes survey, which surveys graduates at a later time but still does not address previously mentioned complexities of employability. The exception is that with a later survey implementation, it does provide graduates opportunity to identify any employment between graduation and 15 months later as opposed to just 6 months after graduation. An example in the United States is the Degree Qualifications Profile and in Canada performance-based funding tied to employment measures is on the horizon (Spooner, 2019). Also worth noting, when measuring the successful development of student employability (even in terms of employment measures) the time in which it is measured can have significant impact on the

results (Palmer et al., 2018), which can have a significant impact on institutions if the measures are bound to funding. The United Kingdom's Destinations of Leavers from Higher Education survey was conducted 6 months after graduation but the Graduate Outcomes survey now surveys graduates 15 months after completion, which they hope will provide an improved depiction of how their education supported them in achieving the nationally mandated employment outcomes.

As mentioned, work-integrated learning is a widely adopted method for developing students' employability. However, there exists a broad range of program structures that have considerable variability between them. The following section will provide background on work-integrated learning and discuss its benefits and challenges.

Work-integrated Learning

Introduction to Work-integrated Learning

Work-integrated learning (WIL) is considered "educational activities that intentionally integrate learning within an academic institution with practical application in a workplace setting, relevant to the student's program of study or career goal" (Peters et al., 2013, p. 8). In 2015, 46% of post-secondary graduates in Canada had participated in one type of WIL (Statistics Canada, 2018). Types of WIL include: apprenticeships, field placements, mandatory professional practice, co-ops, internships, applied research projects, and service-learning (Peters et al., 2013) and can include paid or unpaid activities as the term 'work' does not specifically refer to 'employment'. Recent trends have also led to new models of WIL such as micro placements (shorter than 10-days), online projects, hackathons, incubators, start-ups, and as consultants (Kay et al., 2019). These varied program models of WIL can be assigned into either of two main categories, either placement and non-placement (Jackson et al., 2015). Placement WIL requires that the student gain experience in a work setting whereas non-placement WIL programs engage students with employers in authentic learning experiences on campus (Jackson et al., 2015). For instance, a hackathon would often be considered as a non-placement WIL experience because it would take place on campus whereas an internship or co-op would be considered as a placement because the student would be placed at an employer's workplace. Regardless of which WIL program model is considered, the key characteristic is the established link between the academic institution and the industry with 'practical application in a workplace'.

Each type of WIL is offered using different program design, but they all focus on building a student's employability competencies through out-of-classroom experiences. For instance, as a fourth year opportunity, in the University of Manitoba Kinesiology and Recreation Management degree, students can participate in a supervised fieldwork experience, which consists of a 450-hour commitment (University of Manitoba, n.d.). A service-learning program is typically designed to integrate students into a community to offer a service in which the employability competencies they enhance in that experience have practical application to their desired career field, such as medical students volunteering at various community organizations to provide them context of the communities in which they will serve. A final example is co-op programs in which students alternate academic study with paid work placements to provide practical experience to what they learn throughout their academic journey.

Theories Supporting Work-integrated Learning

To fully appreciate the integration of WIL programs around the world, it is important to understand its theoretical roots. WIL is derived from the works of several authors concerned with understanding the way in which students learn and in some instances presenting a new way of learning that was not defined by a classroom and a teacher disseminating knowledge to empty vessels (Astin, 1999; Dewey, 1986; Kolb & Kolb, 2008; Kuh, 1995; Pace, 1982).

David Kolb's (1984) experiential learning model is widely applicable to a variety of contexts and therefore many WIL programs adopt its basic principles. Kolb's model can be described as a cyclical model that includes concrete experience, reflective observation, abstract conceptualization and active experimentation. The centre of the model represents a continuous 'grasping' process between concrete experience and abstract conceptualization and a 'transforming' process between active experimentation and reflective observation. This model is primarily rooted within the works of John Dewey.

Dewey provided two particularly important contestations to the discourse of traditional education that helped shape the path for WIL to emerge. The first, was that it was previously assumed that what was taught was a static finished product without thinking about how it was created or how it would change over time. The second was that "there is an intimate and necessary relation between the processes of actual experience and education" (Dewey, 1986, p. 244). Dewey was also very clear that this experiential path is not easier than the traditional

teaching method and that not all experiences are beneficial in one's education, which requires research to understand how to create the right experiences.

In addition, many researchers support WIL in a variety of ways (Astin, 1999; Chickering & Gamson, 1987; Kuh, 1995; Pace, 1982). Often cited, Astin's (1999) Involvement Theory generally supports WIL because it can increase student engagement. However, students need to put in the effort if they hope to take as much away from the opportunity as they can as they have limited time to take advantage of the opportunities presented in WIL (Astin, 1999). Pace (1982) adds that what counts the most (regarding their learning at university) is not who the student is when they get to college, but what they do, which is why taking advantage of opportunities when available is important for students.

The idea that learning can happen in various environments is also noted in the work of Kuh (1995) who proposes that students' education can be further enhanced outside of the classroom. He found that students' development in various 'outcome dimensions' such as interpersonal competence; practical competence; cognitive complexity; knowledge and academic skills; and humanitarianism are related to engagement in relevant activities such as engaging in leadership roles, interacting with peers and working. Chickering and Gamson (1987) also noted various approaches to effective teaching performance: a strong sense of shared purpose; policies and procedures that are consistent with stated purposes; and continuous examinations of how well the purposes are being achieved. These are easily applied to WIL.

Benefits and Challenges of Work-Integrated Learning

WIL has been identified as a key strategy for supporting postsecondary education in Canada (Business Council of Manitoba, 2020; Cewil-Canada, 2019; Ontario Ministry of Training, Colleges, 2012; Peters et al., 2013). Though there exists considerable support for WIL by various academics and governments, it is important to continue to investigate the empirical research on WIL programs to get a better sense of the various benefits and challenges that exist. It is equally important to replicate research studies in various contexts to get a fuller understanding of what supports student learning.

There are many studies that highlight the benefits of WIL, such as greater academic performance (Blicblau et al., 2016); allowing students to practice applying theory in real-life situations and enabling networking (Jackson, 2019); greater improvements to professional

identity (Macdonald et al., 2014); and greater overall student experience (Martin & Rees, 2019). Employers also note the benefit of having additional human resources to take on projects they might not otherwise have the personnel for and of providing a fresh perspective (Martin et al., 2019).

Peters et al. (2013) note that WIL provides the opportunity to apply theory to practice; develop marketable skills; and contributes to, personal growth and increased civic engagement; financial compensation; and quality work experiences. However, when analyzing graduates, Peters et al. report that there was no statistically significant difference in labour force participation rates or unemployment rates between graduates who had completed a WIL program and those who did not, with the exception being Arts graduates in which not having a WIL experience resulted in lower rates. This conflicts with Ontario's proposed performance-based funding, which requires WIL experiences as a criterion. Within this category of labour force participants, some of the benefits to graduates who participated in WIL included improved prospects for full-time employment; rating the quality of their university education in developing employability skills higher in all eleven categories, nine of which were statistically significant; higher job satisfaction; and significantly higher average annual income for employed graduates.

Despite the associated benefits of WIL, many challenges exist and cover a broad spectrum of issues for different stakeholders. Some challenges are the host-organization supervisors not fully understanding their role (Jackson, 2015; Winchester-Seeto et al., 2016), lack of structured framework that supports learning (Nagle et al., 2018; Smith et al., 2019), students feeling unprepared for their placement (Jackson, 2015), or university staff member concerns about ensuring high-quality placements and having enough placements (Peters et al., 2013). In some instances, an over supply of students and lack of appropriate numbers of placements puts students with lower grades, ill health, or those who have to maintain part-time work at a disadvantage in participating, in addition to those who may not be able to extend the length of their studies, unable to relocate, or have financial constraints (Divan & McBurney, 2016; Jackson et al., 2015).

Furthermore, employers struggled with the feasibility of providing students with WIL opportunities due to lack of suitable work, concerns that students may not have the appropriate skills, lack of staff time to recruit and train (Jackson et al., 2015; Peters et al., 2013) and smaller

organizations noted the additional strain of resources (Jackson et al., 2015), including those needed for dealing with assessment (Scholtz, 2020; Yorke & Vidovich, 2014).

Peters et al. (2013) also noted that although some studies have highlighted that graduates that participated in WIL find employment faster upon graduating and have less debt, those results were not replicated in their case. This is likely to do with generalizing over many forms of WIL. Bias against international students was also raised as a challenge (Jackson et al., 2015). Another considerable challenge is that for WIL programs to be effective there is a need for universities and employers to invest considerable resources into building strong partnerships before being able to offer the program and that employers need to engage in this process with each individual university (Jackson et al., 2015). Lastly, due to the vast differences in types of WIL offerings, depending on what a student engages with might present challenges such as not being paid, having to pay to participate, and reluctance to delay their academic timeline (Peters et al., 2013).

Because WIL programs offer different experiences and the benefits and challenges identified in studies that examine WIL broadly can be overgeneralized, the present study will investigate a single program type: co-op. The rationale for selecting the co-op program type was for two reasons. First, co-op programs continue to see rising participation across various disciplines in most provinces at both colleges and universities, including in Manitoba (Rodriguez et al., 2016). Second, the Government of Manitoba formally endorses co-op programs with tax incentives for employers (Government of Canada, 2020), suggesting co-op programs will continue to grow in the province. Co-op will be explored in greater detail in the following section to elucidate the specifics of this program model.

Co-operative Education

Introduction to Co-operative Education

Co-operative education is not new to higher education. It has been operating in the United States since 1906 and in the United Kingdom's 'sandwich model' since 1903 before beginning in Canada at the University of Waterloo in 1957 (Angerilli et al., 2000; Crichton, 2009). It was not until 1973 however that the Canadian Association for Co-operative Education was formed, which would evolve to be larger in scope and renamed as Co-operative Education and Work-integrated Learning Canada (CEWIL). By 2004, over 78,000 students were enrolled in

co-op programs in 78 Canadian institutions (Angerilli et al., 2000) highlighting the significance for research in the field.

CEWIL defines co-op as a formal integration of a student's academic studies with paid work experience with participating employers where their performance will be supervised and evaluated by the employer (Angerilli et al., 2000). They highlight that co-op requires a shared responsibility between employers and educators to prepare students for 'profound social, technological, and economic change' and that the responsibility resides with students to direct their own learning, which has been stated, is a core component of the neoliberal ideology.

Co-operative Education Models of Assessment

Developing an effective assessment model for co-op programs can be challenging for several reasons, such as, ensuring its applicability to the diversity of placements, ensuring the aims of the model is agreed upon by the institution and employers, and that the aims are measurable within the context of the placement (Sturre et al., 2012). There appears to be an acknowledgement that whichever method of assessment an institution chooses, that a collaboration between employers and institution should occur (Dunn et al., 2012; Richardson et al., 2013; Sturre et al., 2012). Employers also believe they should be involved in providing students feedback as a function of their role as supervisor (Richardson et al., 2013) but are not always comfortable engaging in summative assessment that would directly affect a student's academic grade (Crebert et al., 2004).

The type of assessment model that an organization has chosen to use has significant implications for the duties assigned to both students and employers within a work term and therefore should be clearly stated within any co-op program to support students in achieving successful work terms. Zegwaard and Coll (2003) outlined three assessment models that can be briefly described as (1) employers' identification and ranking of graduates' competencies; (2) student/employer negotiated work term learning objectives, and (3), a portfolio model. It has also been suggested that student reflection can support in the assessment of students' development (Dunn et al., 2012; Sturre et al., 2012; Zegwaard et al., 2003). Though these three assessment models appear distinct enough, universities often adjust or combine them in ways they believe will make them most effective for their context.

The identification and ranking of student competencies model is a straight-forward approach in which employers are provided a list of competencies, such as ‘initiative’ or ‘flexibility’ and they provide a ranking of the student’s performance. Alternatively, an example of an assessment model based on negotiated work term learning objectives is presented in Richardson et al. (2009) who propose a cyclical ‘plan-do-review’ approach. First, planning the work placement occurs in collaboration with the employer, institution, and student to establish agreed upon learning objectives. During the ‘do’ phase, students engage in the workplace and receive feedback, which is shared with the institution, followed by the ‘review’ stage in which the feedback is reviewed, and new planning begins. This cycle occurs throughout the placement so that feedback can be implemented immediately towards new placement goals.

When implementing a portfolio model, Meeus et al. (2006) suggest that it be student-centred, competence-oriented, cyclical with regard to action and reflection, and multimedia-oriented. Dunn et al. (2012) agrees with Meeus et al. and suggests co-op include various activities that would support building the students’ portfolios, such as writing reports on activities relevant to their profession; developing learning objectives in relation to those activities; providing evidence of completion of discipline-specific tasks; and mapping learning benchmarks with their academic and workplace supervisors. However, they noted that some students and supervisors did not always understand the purposes of the reflective exercises.

A study conducted by Arunita et al. (2011) for engineering and computer science students at the University of Windsor demonstrated the added benefits to using a combination of assessment measures in a co-op program. Students were assessed on their skill development using a self-reflective survey of perceived improvements, peer assessments and through the development of a portfolio, which included reflective responses on items such as structured activities, final work term reports, resumes and cover letters. Employers and faculty were required to provide assessments using a standard rubric on the items within the portfolios. Employers also provided a final evaluation of student work performance on measures such as, ‘creativity’ and ‘organization and planning’. The results of the Arunita et al. (2011) study suggest that the combination of assessment measures was a more effective method for assessing co-op students.

Benefits and Challenges of Co-operative Education

Much like WIL broadly, there has been an abundance of research into the many aspects of co-op. However, much of the research tends to focus on outcomes over process, either overall outcomes of co-op participation or outcomes of particular aspects of the co-op program process. The research has highlighted many benefits for students in participating in co-op but also suggests just as many challenges. Some of the benefits to students of co-op include better vocational self-concept (Drewery, Nevison, Pretti, 2016) and academic self-concept (Drysdale & McBeath, 2012) than their non-co-op counterparts; opportunity to put theory into practice, develop awareness of workplace culture, and establish career plans and strategies (Crebert et al., 2004); and develop competencies (Freudenberg et al., 2011; Khampirat et al., 2019; Wilton, 2012). Some challenges are, the negative impact on student well-being when they do not secure employment (Cormier & Drewery, 2017) and work placements that do not offer the potential benefits of a co-op due to a misalignment of students' perceived relevance of their work term and their personal goals (Drewery et al., 2016).

Additional challenges exist for the institutions that support co-op programs such as trying to balance the expectations of their various stakeholders, either students expecting their experience to be impactful and related to their goals or employers viewing students just as potential future employees they can 'test drive'. It is for these reasons that a detailed, structured, and inclusive work term should be defined as clearly as possible. As outlined in the CEWIL co-operative education manual, the plans for co-op terms are expected to be student-driven and therefore relies heavily on their abilities to effectively navigate and balance the demands of employers and expectations in achieving program learning objectives. Despite various institutional efforts to provide support, there are instances of students being misinformed, (Rowe et al., 2012) and workplace supervisors not fully understanding the scope of their role in supporting students as workers and as learners. Further, employers may prioritize workplace deadlines over tasks related to the student, such as reviewing their submitted reports (Crebert et al., 2004). These challenges emphasize the need to identify and assess the relevant employability competencies in the most valid manner possible.

Research on Assessing Employability Competencies

Clarke's (2018) Integrated Model of Graduate Employability provides the baseline perspective that was used in this study. As shown earlier in Figure 1, her model is quite extensive as it consists of the relation between several broad factors (e.g., human capital, social capital, individual attributes), and within each broad factor, there are more specific factors such as 'competencies' and 'university ranking'. Therefore, it should be noted that the research on employability competencies below was intended to represent only that particular segment within Clarke's extensive model. Moreover, depending on the context of a study, the competencies described may not appear in the corresponding dimensions as explained in Clarke's model (e.g., Adaptability). Some such studies will be examined below as their approach informed the method of this study, which is outlined in the following section.

The following related studies assessed employers' perspectives of competencies, primarily from the human capital perspective. While the competency list in each study reviewed in this section is usually adapted from previous studies, minor adjustments are often made to fit better with specific contexts. This is not uncommon for authors to do because over time the most highly sought-after competencies shift based on the changing nature of society and work and the expanding definitions of competencies and employability.

Coll et al. (2002) focused on many of the same competencies as those of Spencer and Spencer (1993) (Appendix A). In addition, they included additional competencies, such as 'ability and willingness to learn'; 'written communication'; 'personal planning and organizational skills'; and 'computer literacy', which they believed were relevant at the time. A 7-point Likert scale assessed the level of importance employers placed on the competencies in which a "1" represented "unimportant" and a "7" represented "important". Using one-tailed t-test, employers considered a competency to be important if the mean rating was above 4 out of 7. As summarized below, each competency was noted as important by employers.

Employers noted 'ability and willingness to learn' as most important with a mean score of 6.09 followed by 'team work and co-operation' and 'initiative' with scores of 5.91 and 5.89 respectively. They classified these as soft skills at the time; different than hard skills such as 'analytical thinking' and 'computer literacy' which received the top mean scores for hard skills with 5.86 and 5.67. Comparing the mean score for the top 6 soft skills to the top 6 hard skills

(only 6 hard skills listed in the study), it becomes clear that soft skills were ranked as more important. When asked to predict the level of importance of the same 24 competencies 10 years into the future, employers ranked every competency higher, with the same top 5 competencies mentioned maintaining their top rankings ('computer literacy' jumped to second overall pushing 'team work and cooperation' and 'initiative' down to being tied for the 3rd and 4th and 'analytical thinking' to 5th overall). The practical application of these rankings can be an obstacle for co-op education administrators looking to provide students and employers with guidance on what to focus on during the work term because the difference between the top and bottom- ranked competencies was quite narrow (1.79) and the difference between the top rated and tenth rated competencies was only 0.48.

A similar study by Hodges and Burchell (2003) who studied employers of business graduates, measured both importance and performance of a series of competencies. They also derived much of their competencies from that of Spencer and Spencer (1993). There were three competencies excluded from the original list of Spencer and Spencer, which included 'information seeking', 'directiveness: assertiveness and use of positional power', and 'team leadership'. The reasoning for the removal of these competencies is as follows. First, they believed that the elements that represented 'information seeking' (problem definition, diagnostic focus, looking deeper, contextual sensitivity) were better situated across 'conceptual thinking', 'analytical thinking', and 'initiative'. Second, they chose to amalgamate 'directiveness' and 'team leadership' into a single competency titled 'leadership'. Further, they included additional competencies such as, 'interpersonal communication' to differentiate from relationship buildings' emphasis on networking and contact building towards speaking, listening and non-verbal communication and 'problem solving' to distinguish problem resolution from problem analysis, which is an element within the 'analytical thinking' competency.

Using a similar 7-point rating scale as used in the Coll et al. (2002) study, "1" represented "unimportant" and "7" represented "very important". Employers in this study rated 24 out of 25 competencies as important (rating over 4), with the only exception being 'developing others' (3.86). For the rating of performance, employers were asked to rate the typical level of performance that business graduates demonstrate for each competency. Employers rated graduates' performance on a 7-point scale with "1" representing "poor" and "7" representing

"excellent". Similar to the cut-off that classified a competency as "important", a mean performance score above 4.0 on a competency, indicated a proficient level of performance. Based on this cut-off, graduates were judged as proficient in 22 of 25 competencies. Overall, this appears to be positive results for these students who were considered proficient in most areas considered as important.

In a recent conference paper, Zegwaard et al. (2018) surveyed science and engineering employers on the importance, both currently, and predicted 10 years later, and on how graduates are currently performing on a list of 26 competencies. Zegwaard et al. indicate that the competencies selected were synthesized from the wider literature except for 'digital interpersonal skills' which they included because they believed it was relevant. Only four competencies from Spencer and Spencer (1993) were included, 'organizational awareness' and 'conceptual thinking', 'technical knowledge[1]', and 'teamwork[2]'. 'Adaptability' was included as its own competency, whereas it was an element within 'flexibility' in Spencer and Spencer's competency dictionary. 'Written communication' noted in Coll et al. (2002) and 'leadership' and 'problem solving' from Hodges and Burchell (2003) were included here as well. Some of the competencies that were not included in the previously discussed studies include 'digital interpersonal skills', 'data analysis', 'ethical responsibility', 'societal responsibility', 'environmental sustainability', and 'global awareness'. Using the same 7-point Likert scale as used in the Hodges and Burchell (2003) for current and predicted importance, they classified any competency above a mean score of 3.5 out of 7 as important. Among the ratings of current importance, 'global awareness' had the lowest mean rating (4.39). Interestingly, the lowest predicted importance of these competencies was notably higher at 5.02.

The 7-point Likert scale for performance is unclear as they do not indicate what "1" represents and they indicate that "7" represents "very important". Further, they assessed whether a performance gap existed by calculating the difference between current importance and performance. And found a negative mean score for all 26 competencies except for 'digital interpersonal skills' when calculating the performance gap. This is not an appropriate comparison to make judgements about a performance gap in students. This comparison is

[1] Listed as 'technical expertise' in Spencer and Spencer (1993)
[2] Listed as 'teamwork and cooperation' in Spencer and Spencer (1993)

misleading because the rank given for importance does not act as the baseline for expected level of performance of a given competency. The questions being asked are closely related (importance and performance) but when analyzing for a performance gap, it ignores providing a common denominator of expected performance for the various competencies by which to compare their performance; they just compared importance to performance.

Interestingly, there are a couple of the same top competencies noted between the Zegwaard et al. (2018) study and that of Coll et al. (2002), including teamwork and written communication, but also competencies that are closely aligned that appear in both, such as ‘flexibility’ and ‘analytical thinking’ in the Coll et al. study and ‘adaptability’ and ‘critical thinking’ in Zegwaard et al. The Zegwaard et al. study also compared their current results to the past work of Hodges and Burchell (2003) which provides stronger comparisons because in their study they assessed performance in addition to ranking the importance of competencies. Despite some difference in terminologies between the Zegwaard et al. and Hodges and Burchell studies, they found similar competencies as having the greatest performance gaps, defined as the difference between importance and performance. Both studies utilized ‘written communication’ and ‘problem solving’ in their competency lists, which demonstrated larger performance gaps, and ‘interpersonal communication’ was used in Hodges and Burchell compared to ‘oral communication’ in Zegwaard et al. which was also a larger performance gap. One caution for comparing mean score rankings of competencies across studies is that the rankings within a given study have been relatively close and therefore is not as meaningful when comparing the top or bottom ranked competencies as they could easily shift without affecting the absolute ranking.

Hernández-March et al. (2009) also explored employers’ perspective on which graduate competencies are considered most crucial, and students’ performance level in more detail. They used a 5-point scale where “1” represented the lowest and “5” as the highest to compare the difference between “required level of graduates’ skills” and “acquired level of graduates’ skills”, which is a better comparison in determining a skills gap (performance gap) than the previously mentioned study of Zegwaard (2018). The competencies used in this study have some similarities to the studies of Coll et al. (2002) and Hodges and Burchell (2003) in ‘ability to learn’, ‘computer skills’, ‘written communication’, ‘problem-solving ability’, and ‘ability to

work as part of a team'. However, due to the difference in measurements between these three studies, comparisons are difficult to make. The average difference between competencies categorized as 'knowledge-related', which were 'oral communication', 'written communication', 'computer skills', 'English language skills', and 'other foreign language skills' was -0.57 whereas in the 'methodological' category, which included 'ability to learn', 'problem solving ability', 'time management', 'ability to work under pressure', 'decision making', and 'creativity' was -0.75. The total difference across all competencies was -0.72, suggesting that graduates did not perform at the level expected by employers.

Of note, Hernández-March et al.'s decision to include English and other foreign languages in their competency list suggests that context does matter and according to their findings, employers generally agreed by scoring it relatively high. They even found a significant disparity between knowing English versus other foreign languages. Despite employers expecting more from graduates, the authors noted that most employers believed university graduates do not take more than six months to be proficient in the work duties they are hired for. This can be considered another example that perpetuates the skills gap discourse but would more appropriately suggest an experience gap.

Approaching the investigation of what employers want from graduates from a slightly different angle, Hart Research Associates (2015) surveyed employers about their perceived importance of various "college learning outcomes", which were comparable to competencies in other studies. In fact, there was considerable overlap in "learning outcomes" to the "competencies" of other studies. For example, outcomes such as 'working with others in teams' and 'critical/analytical thinking' in the Hart Research Associates study resemble the competencies 'teamwork and cooperation' and 'analytical thinking' from Spencer & Spencer (1993) and the outcome 'written communication' is unchanged from that of Spencer and Spencer. However, some other outcomes were harder to connect to corresponding competencies such as 'staying current on changing technologies and their applications to the workplace' versus 'computer/ICT' used in the recent Zegwaard et al. (2018) study. Similar to Zegwaard et al. (2018), it does appear that the 'outcomes' (competencies) selected for the study have connections to present day trends related to globalization, such as 'awareness/experience of diverse cultures in US' and 'staying current on global developments'. Rather than reporting the mean rating of

importance for each outcome, their results reflected the proportion of employers who rated each outcome as an 8, 9, or 10 on a 0-10 scale. Only 60% of employers ranked ‘staying current on changing technologies and their applications to the workplace’ as important. Outcomes related to communication, teamwork, and critical and analytical thinking were highly ranked in this study.

Using a more indirect approach, Borwein (2014a) analyzed a collection of job postings that explicitly stated “no experience” required to get a representation of what employers are looking for from graduates. This study utilized Employment and Social Development Canada (ESDC) essential skills definitions and keywords as well as some essential skills which emerged throughout the coding process of the data set such as ‘sales skills’ or ‘ability to work independently’. Borwein found that ‘working with others’ (93%), ‘oral communication’ (84%), and ‘computer use’ (74%) appeared most frequently in the job postings, followed by ‘administrative and organizational skills’, ‘document use’, ‘thinking’, ‘writing’, and ‘time management’ which appeared in more than half the postings.

As alluded to above, asking employers the right question is critical for understanding what competencies students should be proficient with. But this is also contextually linked to which stages in their education students are at. The studies above focus on what employers expect from their recent graduate employees and do not appear to consider the lack of direct experience for many entering the workforce.

Fleming et al. (2009) were intentional in asking employers of students in the area of sport studies to rank the importance of the same list of 24 competencies as Coll et al. (2002) at two intervals in a students’ lifecycle, prior to their first co-op experience (identified as “student”) and as a “graduate”. They also used the same 7-point Likert scale as Coll et al. (2002) in which “1” represented “unimportant” and “7” represented “important”.

Intuitively, the importance of all skills increased by the time of graduation in which their mean scores more closely resembled scores from other studies that have been presented (Coll et al., 2002; Coll & Zegwaard, 2006; Hodges & Burchell, 2003; Zegwaard et al., 2018) in that everything was considered important with a mean score well above 4.0. Over time, some skills shifted significantly in their ranking, such as ‘relationship building’ which was ranked 18th (3.52) for students and 4th (6.52) for graduates. None of the top three competencies switched ranking over time (‘ability and willingness to learn’, ‘initiative’, and ‘personal planning and organization

skills'). Further, there were only five competencies that received mean scores above 5.0 for students whereas all competencies were scored above 5.0 for graduates. On the surface, this might suggest developing co-op programming that is focused on what employers believe students need before embarking on a co-op work term but it is important to keep in mind that a co-op program is intended to act as a learning opportunity that provides students the competencies needed to be successful upon graduation and therefore it is recommended that relationship building activities occur for co-op students despite being ranked relatively lower in importance as a student.

Nevison et al. (2018), asked employers to rank the "importance" (out of 10) and "performance" (out of 5) of co-op students' "attributes" in order to assess whether the attribute has an impact on employer satisfaction with the student. They suggest that the underlying attributes of students' behaviours influence employers' satisfaction with the students. The "attributes" listed may be considered factors within "individual attributes" of Clarke's (2018) Integrated Model of Graduate Employability (Figure 1). However, Nevison et al. included 'relevant prior experience' as an attribute and Clarke suggests work experience is a factor within "human capital". Further, a few attributes included in this study are similar to the competencies reported on in other studies. For instance, 'enthusiasm' resembles 'energy and passion' included by Hodges and Burchell (2003); 'independence' is considered an aspect of 'self-confidence' in Spencer and Spencer (1993); and 'hardworking' resembles 'willingness to work' in Hernández-March et al. (2009). Conversely, some competencies, such as 'self control' or 'flexibility' (Spencer & Spencer, 1993), could possibly be better defined as an attribute. These differences in perspectives of what constitutes a competency or an attribute within the literature makes it challenging to compare factors of employability across studies. The three most important attributes were 'relevant prior experience' (9/10), 'higher quantity of work' (7.69/10), and 'professionalism' (6.1/10). The performance of these three attributes received mean scores of 1.74, 2.84, and 3.04 out of 5 respectively, which were among the lowest performance rankings. This indicates that level of importance appeared to be inversely related to the level of performance. Simply put, attributes that were considered most important were considered among the worst in performance, and vice-versa.

Chapter III: Method

As previously stated, this study explored the following research questions regarding employers' perspectives of select employability competencies:

1. How important is each employability competency among recent graduates?
2. How well do co-op students perform in each competency?
3. How frequently do employers assign co-op students work tasks that foster the development of each competency?
4. How many hours do co-op students engage in work tasks that foster development in each competency?

Participants

The eligibility criteria for study participants consisted of supervisors who have hired, and supervised, at least one co-op student for a minimum of two work terms within the last 24 months. The supervisor's organization had a formal co-op partnership with the University of Manitoba. Given that a larger organization could have several supervisors working with co-op students, a single organization could have more than one survey respondent if they have multiple co-op supervisors.

The following University of Manitoba faculties confirmed their willingness to support the study: Faculty of Agriculture and Food Sciences; Clayton H. Riddell Faculty of Environment, Earth, and Resources; the Asper School of Business, the Faculty of Science, the Faculty of Architecture and the Faculty of Engineering. To maintain participant confidentiality and anonymity, each participating faculty invited prospective participants by forwarding a study invitation email provided by the researcher, which included a link to the survey. Due to potential overlap in faculty contacts (partnerships with the same employer organization from different faculties), outdated mailing lists, contacts that may not fit the eligibility criteria, and other potential unknown limitations resulting from not having direct access to the prospective participant lists, the number of employers contacted was unknown but estimated at approximately 300. While 90 study participants confirmed their willingness to participate, the average response rate of each question in the survey was about 75%. Response rates for each section of the survey are noted in the results section.

Survey

An online survey was created by the researcher that consisted of three main parts

(Appendix B). The online survey approach was used, not only because it can easily reach more potential participants, compared to paper versions, but also due to contact restrictions during the COVID-19 pandemic. The first part included six Likert-type preliminary questions on the work environment such as “How many employees work in your organization?” and “How many co-op students have you supervised?”. The second part consisted of 4 questions that were asked for each of the 10 employability competencies. For example, a question such as “How important would you say this competency is for recent graduates to successfully transition to the workforce in their field of study?” was asked for each competency such as ‘Ability to learn’, ‘Adaptability’ and ‘Teamwork’. The third part consisted of three open-ended questions that aimed to contextualize the responses of part two such as “What considerations (positive or negative) impact the type of work tasks you assign co-op students?”

These 10 competencies were chosen based on the following considerations. First, because each competency was assessed in terms of each of the four research questions listed above, which represents 40 survey items, in addition to eight Work Environment questions and three open ended questions, totalling 51 survey items, it was felt that having 10 competencies would provide detailed data, but within a feasible survey length. In comparison, Zegwaard et al. (2018) required rankings of 26 competencies on three research questions, totalling 78 rankings.

Second, these 10 competencies represent two broad groupings based on previous studies. The first group consisted of earlier studies such as Coll et al. (2002), Hodges and Burchell (2003), and Fleming et al. (2009), which were based primarily off of Spencer and Spencer (1993). The second group of studies consisted of more recent studies such as Zegwaard et al. (2018), Hernández-March et al.(2009), and Hart Research Associates (2015). The study included the most highly rated competences from the earlier and more recent studies to better understand how the findings of the proposed study will connect to the broader range of results in the field.

Third, it is important that most of the selected competencies firmly reside within the human capital pillar of Clarke’s (2018) employability model (Figure 1), which emphasizes “competencies” and “skills”. This rule separated out many competencies that could also be argued to be individual behaviors, such as ‘career self-management’ and ‘reflecting on experiences’ or individual attributes, such as ‘initiative’ and ‘intercultural communication’.

Finally, some competencies, such as ‘conceptual thinking’, ‘leadership’, and

'organizational awareness' were included, not because they ranked highly in the previous studies for "importance" but are considered important for the current Canadian labour market.

Participants responded to each of the four questions in part two on a Likert-type scale that corresponded to the particular competency. For example, the response options to the first question - "How important would you say this competency is for recent graduates to successfully transition to the workforce in their field of study" ranged from '0' meaning 'Not at all important' to '6' meaning 'Crucial'. In addition, to help foster a more consistent understanding of what each level meant, each level was briefly defined. For example, a '1', which was labelled as 'Very little importance', was defined as "Very few workplace applications. Weaker performance would not affect job roles.". A '5', which was labelled as 'Highly important', was defined as "Many workplace applications. Reasonable performance needed for all job roles." In a similar manner, response options to the second question – "At what level would you say that co-op students generally perform this competency by the end of their co-op term?" ranged from '0' meaning 'Very poor' to '6', which meant "Excellent".

Procedure

Each participating faculty co-op office was provided a pre-written and formal email invitation to send directly to prospective participates of the study (see Appendix C). The study invitation was sent out through each of the co-op offices' respective co-op contact lists and included a link to the survey instrument, conducted using SurveyMonkey, which included instructions and corresponding questions (Appendix B). The purpose of faculties sending out the survey invitation was to maintain data privacy of employer contact lists and to ensure anonymity in responses. Furthermore, it was made clear that organizations that hold formal co-op partnerships with the University have varying methods of communication with the faculties, such as centralizing communications through a human resource department or allowing individual supervisors to communicate with the co-op offices directly. For this reason, the survey invitation invited the email recipient to participate in the study if they met the inclusion criteria but also to forward the survey invitation to colleagues in their organization who may also meet the inclusion criteria. The email invitation also included a link to a separate form within SurveyMonkey that prospective participants could provide their contact information (name and email) to receive the summary of results about a month following survey closure.

The survey was active for a total of 6 weeks and a reminder email was sent out 2 weeks after the initial survey invitation email. Due to the reliance on faculties to send out the study invitation, initial study invitations and reminder study emails, some faculties may not have sent invitations on the recommended dates. For instance, one faculty sent the initial survey invitation out during week 2 of the study with the reminder email following in week 3 whereas another faculty sent the initial email invitation at the beginning of week 5 and did not send a reminder email. It is not expected that the differences in email dates greatly affected the results of the study as most participants responded within 2 days. The anonymous survey data was collected and stored in SurveyMonkey, which was subsequently downloaded and organized, using mean scores and standard deviations, for analysis by the researcher.

Chapter IV: Results

Demographics

Most respondents (86.2%) were from organizations in Winnipeg, with 10.3% in rural Manitoba and 3.5% elsewhere. Interestingly, most respondents work in larger organizations with about 64% of the organizations having at least 100 employees (Table 1). This is consistent with previous reports, which found that organizations that have greater access to capital are more equipped to hire co-op students (Jackson et al., 2015). Looking at the number of work terms supervisors have worked with at least one student (Table 1), 76.8% of respondents have supervised students for up to 6 terms. Similarly, as shown in Table 3, 83.7% of respondents have supervised only 8 or fewer students. Both percentages indicate that the majority of participating supervisors in this study tend to be newer and less experienced compared to those who have supervised a greater number of students over more terms.

Table 1

Organization Size, Number of Work Terms and Students

Organization Size (Number of Employees)		Number of Work Terms Supervised		Number of Students Supervised	
Fewer than 10	6 (7.0%)	1-2	30 (34.9%)	1-2	29 (33.7%)
11-25	7 (8.1%)	3-4	22 (25.6%)	3-5	25 (29.1%)
26-50	8 (9.3%)	5-6	14 (16.3%)	6-8	18 (20.9%)
51-75	8 (9.3%)	7-8	11 (12.8%)	9-11	5 (5.8%)
76-100	2 (2.3%)	9-10	6 (7.0%)	12-14	2 (2.3%)
100-250	11 (12.8%)	11-15	2 (2.3%)	15-25	7 (8.1%)
Over 250	44 (51.2%)	Over 15	1 (1.2%)	Over 25	0 (0%)
Total	87		86		86

Note. In each column, percentages may not total exactly 100% due to rounding.

Research Questions

Figures 2-5 shows the employers' ratings for each of the 10 employability competencies in terms of importance, performance, tasks/week, and hours/week respectively.[3] The interpretations of rating patterns are presented below within each of the four research questions.

How important is each employability competency among recent graduates?

As shown in Figure 2, while co-op supervisors tended to rate each competency as fairly important, the most important were 'Analytical thinking and problem solving' (M = 6.2) and 'Concern for order, quality, and accuracy' (M = 6.1). The least important were 'Organizational awareness' (M = 4.3) and 'Leadership' (M = 4.2). This pattern suggests that the more important competencies are those that co-op students are expected to have prior to their co-op term, while the competencies viewed as less important appear to be those that would take a greater amount of time in the field to develop. One of the open-ended questions allowed employers to list areas of improvement in their co-op programs that would support the development of highly sought-after competencies. While many employers indicated either they could not think of ways to improve

[3] Additional descriptive results for category of ratings are presented in Appendix D

the program or were content with the current program, some responses continued to suggest the importance of students being able to perform various competencies prior to entering co-op work terms, such as the following:

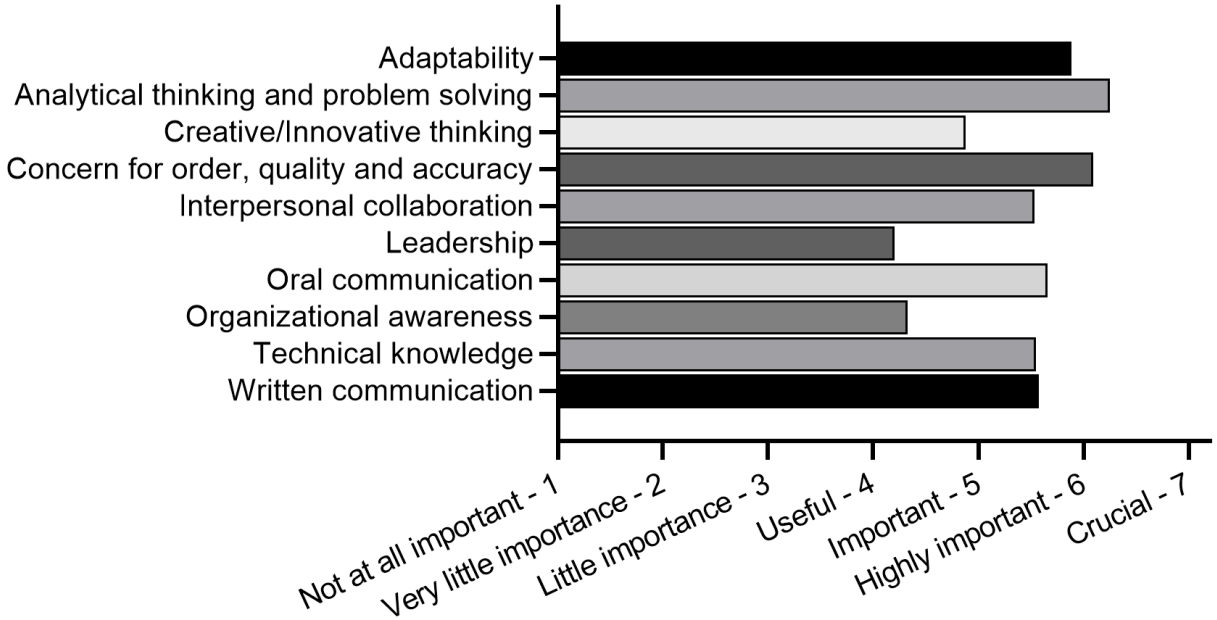
- Workshops/seminars on aspects of work, soft skills, project management and expectations in the workplace
- Requiring completion of university courses that are critical to success in the workplace be pre-requisites to participating in co-op
- Improve job posting board to allow employers to easily advertise types of projects they are hiring for
- More “real-world” scenarios covered in the classroom

The above examples demonstrate an overall focus on completing employer tasks but are perhaps misaligned with the purpose of co-op programs, which is to help develop an understanding of transferability of classroom learning to the workplace. Therefore, recommendations that suggest more workshops/seminars on aspects of work or more “real-world” examples covered in the classroom, suggest that those employers do not understand that is their role. Further, requesting completion of university courses act as pre-requisites does not provide much clarity on what the employer deems “critical to success” as most co-op programs already require students to have completed a number of courses in their program. The above examples did not provide clarity which competencies employers believe to be most important.

Clearly diverging from responses that listed direct or indirect improvements, a few responses suggested that the goals of co-op programs are only partially understood. For instance, one employer suggested that co-op programs only serve to get students jobs which they could do without co-op programs and therefore co-op programs are not needed. Another employer did not suggest ways to improve the co-op program and said that co-op terms are only meant to introduce students to the workplace and that is achieved inherently through participation.

Figure 2

Competency Importance Ratings



At what level would you say that co-op students generally perform this competency by the end of their co-op term?

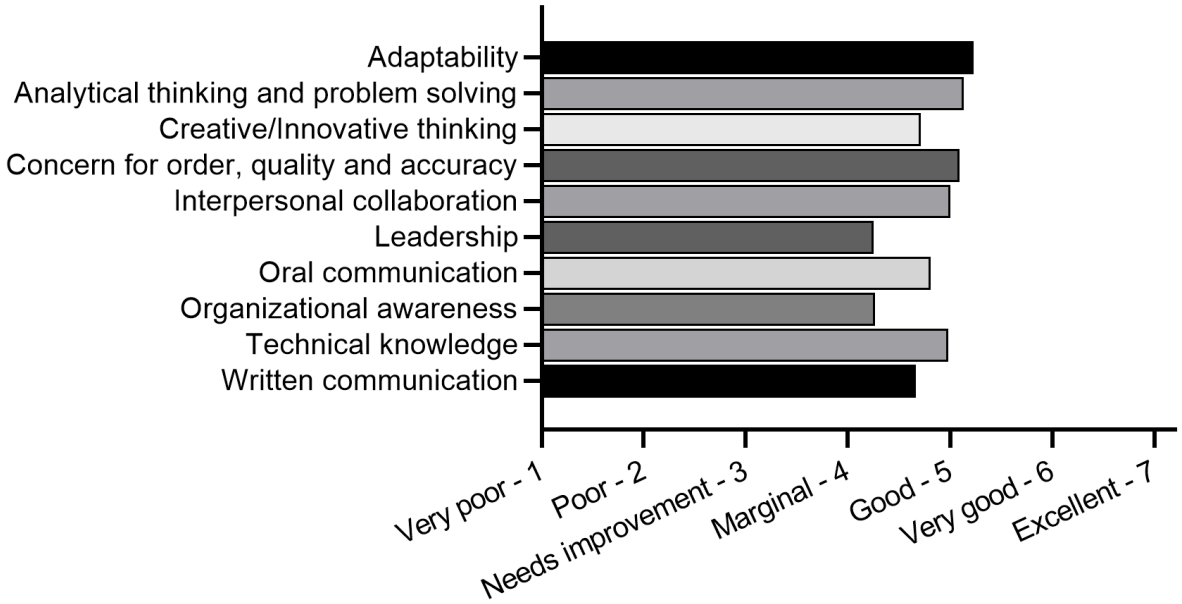
As shown in Figure 3, co-op supervisors tended to rate student performance with each competency as proficient. The most highly rated were 'Adaptability' (*M* = 5.2*)* and 'Analytical thinking and problem solving' (*M* = 5.1). The competencies that co-op employers believed students to be least proficient with were 'Leadership' (*M* = 4.3) and 'Organizational awareness' (*M* = 4.3). One thing to note when viewing the ratings of performance is that co-op employers that took part in the study were not required to rank student performance against any performance metric in accordance with the students' year of study. Thus, according to these mean performance scores, which rated students at a level of "4 – Good" or above across all competencies considered important in question 1, students on average, should be proficient in all important competencies when entering the workforce upon graduation.

Within the open-ended questions, many employers highlighted students' abilities to complete assigned work tasks as a primary consideration when assigning them, which seems somewhat disjointed from their ratings of students' performance across all competencies. Looking further at the question of how co-op programs could be improved, as noted above, there

were several suggestions on ways to improve competencies prior to beginning a work term, such as providing students more "real-world" scenarios in the classroom or seminars on aspects of work and soft skills. These open-ended responses suggest that some employers may not be as satisfied with the performance of competencies or there are other competencies that may be crucial for students to be successful in their co-op work term.

Figure 3

Competency Performance Ratings



How many work tasks would you assign to a co-op student that support the development of this competency in a typical work week?

The results in Figure 4 highlight similar trends to the importance ratings received for research question 1, but with slight adjustments. The competencies associated with the greatest number of assigned tasks per week were 'Technical knowledge' (M = 4.6) and 'Concern for order, quality and accuracy' (M = 4.4), which represents about 7-8 assigned tasks per week. In contrast, the lowest mean ratings were observed for 'Leadership' (M = 2.5) and 'Organizational awareness' (M = 2.4), which represents about 2-3 assigned tasks per week.

An open-ended question of the survey asked employers "What considerations (positive or negative) impact the type of work tasks you assign to co-op students?" The purpose of this question was to explore possible factors that may have influenced how often tasks pertaining to a

particular competency are assigned. Out of 59 responses, the most common word, appearing 26 times, was “ability”. Crucial to note, however, is that the term was described in different contexts. While some responses referred to “ability” as “technical ability”, other responses reflected variations, such as ability to solve problems, communication ability, organizational ability, ability to ask questions, ability to run a meeting, etc. Further, the terms “suitability”, “inability”, “competency”, “capability”, “aptitude”, and “knowledge” all appeared at least once with “experience” appearing 10 times (once as “lack of experience”). The number of times employers brought up these various words suggests that the most important consideration for assigning work tasks to co-op students is whether the student will be successful in the task or not. One employer even noted the frustration when a student cannot complete the assigned tasks and how it creates more work for others than if the employer had just done the task themselves in the first place. It is in the best interest of both employer and student if students can complete the tasks assigned to them.

The second most common consideration was the students’ interest and willingness to work on certain tasks or projects. However, sometimes the needs of the organization did not sufficiently align with the student’s interests, or the student did not have the abilities to complete tasks that aligned with their interest and therefore could not be accommodated. Organizational needs appeared third most commonly stated term, which was often considered in relation to the students’ abilities and interest.

There were very few instances in which any of the employability competencies of the present study were specifically mentioned as considerations. Among these, five employers referred to “communication” but did not specify which type of communication (written or oral). “Problem solving”, “adaptability”, “quality of work”, “interpersonal”, “leadership”, and “technical knowledge” each appeared in one or two responses.

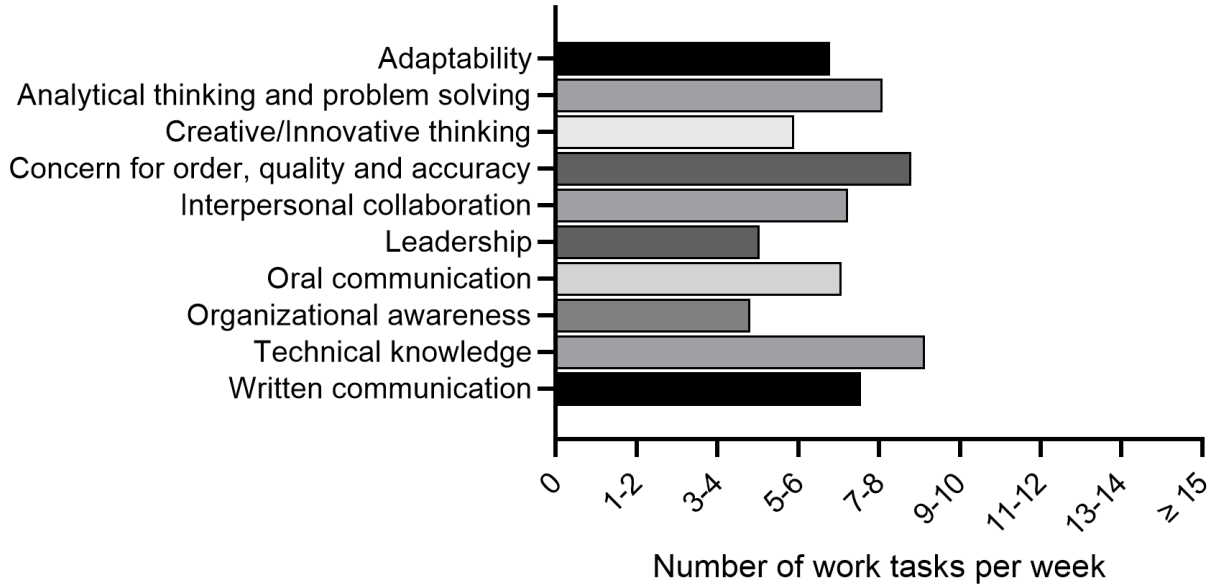
Co-op employers responded to a follow-up open-ended question, “Are these considerations often competing such that you cannot easily manage all of them? If so, how do you reconcile, or prioritize these considerations when assigning work?” Employers’ responses to this question aligned with their responses to the previous question (positive/negative considerations). Employers most often stated that they reconcile competing considerations and prioritize tasks based on if they believe the co-op student can complete the task or not. One

employer noted “How I assign tasks comes down to the urgency of the task. At some points in the year there are jobs that need to be done quickly so I rely on students who are familiar with the task rather than it being a learning opportunity for a less experienced student”, while another employers’ statement considered the questions - "What do we need done?” and “What could we expect a student would be cable of doing” - to create a short list of things the student can pick from.” Conversely, there were more instances in which employers discussed the students’ learning in their responses. One employer noted that “we simply try to match the ability of the student with the level of job assigned to ensure that they are challenged and learning, but not overwhelmed”, while another stated “a safe and healthy learning environment is most important”. Among most responses that discussed student learning, comments tended to talk about balancing that learning with the needs of the organization. One employer indicated that “first priority is meeting team goals, while keeping in mind the individual co-op student’s goals for their term.”

While the ratings suggest that more work tasks are given for competencies that are rated as more important, the open-ended questions provide context that the rationale of employers does not align in this manner. It is primarily a focus on finding work tasks that students can achieve with minimal support as opposed to an emphasis on tasks that support the development of the most important employability competencies.

Figure 4

Weekly Number of Work Tasks Associated with Each Competency

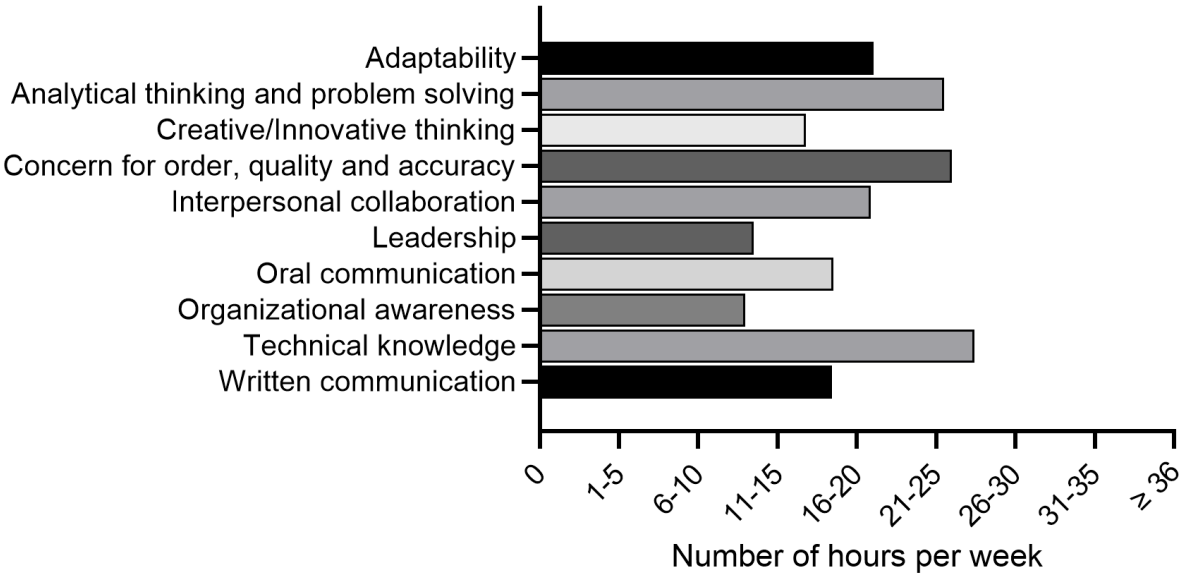


How many hours in a typical work week would a co-op student spend on work tasks that would be expected to help develop this competency?

As shown in Figure 5, the pattern showing competencies connected to tasks that required the highest/lowest number of hours in a typical work week was similar to that found in the previous question on the number of tasks. Co-op employers rated 'Technical knowledge' (*M* = 5.5) and 'Concern for order, quality and accuracy' (*M* = 5.2) as the competencies that are associated with the greatest number of hours students spend on assigned work tasks, while 'Leadership' (*M* = 2.7) and 'Organizational awareness' (*M* = 2.6) were again, competencies that were connected with the fewest hours in a typical work week. It was expected that the insights highlighted from the open-ended questions pertaining to the previous research question on the number of work tasks would apply here as well. In sum, the number of hours a student might spend on tasks to develop a particular competency is based partly on whether the employer believes that student will be able to complete assigned tasks, while attempting to balance student learning and organizational needs.

Figure 5

Weekly Number of Hours Associated with Each Competency



Chapter V: Discussion

The purpose of this study was to identify possible gaps between competencies that employers believe are important for recent graduates and the amount of time co-op students spend developing those competencies within a work term. The results have shown that most employers' ratings of number of, and time spent on, work tasks that they believe develop select competencies are aligned with their ratings of their importance for recent graduates. Furthermore, performance ratings demonstrated that these employers believe that by the end of their work term, co-op students are performing at a level expected of recent graduates.

Employers indicated that students were generally proficient in the competencies that they rated as higher in importance for recent graduates. For instance, 'Analytical thinking and problem solving' was the highest rated competency for importance, and nearly the highest in terms of performance, which suggests "competence well above expected baseline performance for recent graduates", as defined by the scale used in this study. Even the lowest rated competencies for performance, 'Organizational awareness' and 'Leadership', employers' mean ratings suggest co-op students "demonstrate competence and perform at a level above expected

baseline performance for recent graduates," as defined by the scale used in this study. This was an expected result, which does not support the 'skills-gap' discourse.

Research questions 3 and 4 gave insight into the number of tasks and overall time on tasks students spend developing each competency of this study through the assigned work tasks of employers. Not surprisingly, the amount of time students engaged in assigned work tasks that support the development of each competency is related to the competency's level of importance. For instance, 'Analytical thinking and problem solving' and 'Concern for order, quality and accuracy' were ranked as the two most important competencies and were ranked 2nd and 3rd for number of tasks as well as number of hours per week. Furthermore, 'Leadership' and 'Organizational awareness' were aligned in a similar manner as they ranked as the bottom two competencies in each instance. 'Oral communication', which was rated in the middle in terms of importance (ranked 4th), number of tasks (ranked 6th) and overall time on tasks (ranked 6th) were unexpected. At the outset of this study, it was assumed that co-op students would be interacting with other employees frequently by asking questions or working collaboratively, which would have rated time spent on tasks that support 'Oral communication' higher than it was. This could have occurred for a number of reasons, such as employers assigning students more individual work than expected, which would also account for lower ratings for competencies such as 'Creative/Innovative thinking' and 'Organizational awareness', or perhaps employers rated time on tasks that develop 'Oral communication' based on tasks that have a more direct connection, such as delivering a presentation, and not the everyday communications that occur between employees.

The competency that stood out as most surprising was the lower importance of 'Leadership'. Compared to other competencies, employers were less concerned that students needed to be effective leaders when entering the workforce as recent graduates with fewer work tasks and less time allotted to the development of 'Leadership'. Further to having low ratings for 'Leadership', 'Organizational awareness', and 'Creative/Innovative thinking' were also rated low, relative to competencies such as 'Adaptability', 'Analytical thinking and problem solving', and 'Concern for order, quality, and accuracy' which received comparatively high ratings. One explanation could be that employers tend to have a shorter-term focus as they placed greater importance on competencies that are connected to completing assigned tasks with less emphasis

on what could be regarded as longer-term competencies that involve tasks requiring a larger scope of understanding of the organization and its employees.

Interestingly, despite the emphasis within the open-ended questions on students' ability to complete assigned tasks and the time students are suggested to be working on tasks that require 'Technical knowledge', the rating of its importance was tied for 5th out of the 10 competencies in this study. Employers may believe students can learn the technical knowledge through the volume of tasks that require it. Another perspective could be the view that 'Technical knowledge' can be more easily learned in a short term than competencies such as 'Adaptability' or 'Analytical thinking and problem solving'.

Implications

In comparison to previous studies (Hodges & Burchell, 2003; Zegwaard et al., 2018), which focused only on the importance and performance of competencies, the results of this study have shown employers' perspectives of time on tasks that support the development of the stated competencies. This has provided clarity on two critical ideas. First, there appears to be a general alignment between ratings of importance/performance/frequency, such that each competency was usually relatively higher on all three, or lower on all three. Second, the competencies that were generally rated higher were competencies that might be considered 'shorter-term' competencies in the sense that they may be considered more valuable stepping into a new work environment and being able to immediately contribute to the completion of work tasks, as opposed to 'longer-term' competencies, such as 'Leadership' and 'Organizational awareness' that may be needed to complete work tasks that are larger in scope. The focus on shorter-term competencies appears to support the neoliberal ideology in that employers have less responsibility in development of longer-term employability of students.

Despite the general alignment between ratings for the importance of each competency and the number of tasks and overall time on tasks that support the development of each competency, one consideration is that universities should think critically on the purpose of co-op education. Is the goal to prepare recent graduates for initial employment, such that they can accomplish work tasks that may be typical of entry-level positions or is there an expectation that co-op education should provide work experiences that develop students more holistically for longer-term career success, such that competencies such as 'Leadership' and 'Organizational

awareness' may be more critical. A narrow view of student development towards simply preparing them for their first employment after graduation is perhaps the influence of neoliberalism.

Similarly, this distinction between 'shorter-term' and 'longer-term' competencies are just as important for employers to be more aware of. Currently, employers are assigning work tasks and work time towards competencies they believe to be important for recent graduates, but they may want to consider a longer-term view of student development. This recommendation is made also noting that employers believed that co-op students are already performing at a high-level of proficiency in all competencies and therefore spending greater effort on competencies such as 'Leadership' and 'Organizational awareness' may lead to greater long-term impact. Further, employers can use the competencies of the present study as a guideline when identifying work tasks that would support students, and ideally, ensure there are tasks that support each competency throughout the work term.

Limitations

Unfortunately, the COVID-19 pandemic had a notable impact on data collection. The original study was intended to recruit participants with experience supervising students in at least two work terms within the year preceding data collection, but the pandemic put a halt on most co-op programs. That meant collecting responses from employers who may have supervised students less recently. While an employer's perceived level of importance for a competency is likely to remain fairly consistent over time, reflecting back at least 1-2 years on performance and frequency may not be as accurate compared to current judgements.

The survey included three open-ended questions to help provide context to the employers' ratings. However, these questions could have connected more directly to the survey ratings. For instance, one question asked for ways to improve the co-op program that would help support development of highly sought-after competencies but was not specific enough to indicate that the recommendations should be for changes directly within the co-op work term. Most responses reflected ways that an institution could help better prepare students for entering the work term.

While a larger sample will allow for a more confident interpretation of the results, the sample size of this study was not large enough to make meaningful comparisons across disciplines. For instance, it would be interesting to see how much importance an employer of students in a computer science program (Faculty of Science) place on ‘Technical knowledge’ compared to an employer of a marketing student (Asper School of Business)

Recommendations

In addition to directly addressing each of the limitations noted above, one main recommendation for future studies would be to obtain further evidence of construct validity in assessing these competencies. This could be done using various approaches such as assessing student perspectives on the same competencies, direct observation of co-op students within work terms or semi-structured interviews with co-op employers.

Chapter VI: Conclusion

Employers’ decisions that often value completion of business priorities over longer-term student development is worth consideration when developing educational goals for students or setting goals as a student entering the co-op work term. This should not imply that business priorities are not to be considered as there must be a balance to employer and student needs. Based on the findings in this study, it is reasonable to expect opportunities within a work term for a student to be exposed to work tasks that need completion with limited employer support but then complemented with tasks that may be more challenging and require some assistance.

The present study emphasized the distinction between ‘shorter-term’ and ‘longer-term’ competencies as employers placed greater importance on competencies relevant to completing work tasks that are assigned over competencies that are perhaps more suited to larger-scoped tasks within an organization. It would be beneficial for employers, co-op administrators, and students to have more collaborative input on learning objectives of a co-op work term to improve balance of student- and employer-needs. Without greater collaboration, the misalignment of the purpose of co-op education may limit the student’s learning experience, short-term job performance, and long-term career development.

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Appendices

Appendix A

Spencer and Spencer (1993) Competency Dictionary

Cluster	Competency Name	Other titles for competency
Achievement and action	Achievement orientation	• Results orientation • Efficiency orientation • Concern for standards • Focus on improvement • Entrepreneurship • Optimizing use of resources
	Initiative	• Bias for action • Decisiveness • Strategic future orientation • Seizing opportunities • Being proactive
	Information seeking	• Problem definition • Diagnostic focus • Customer/market sensitivity • Looking deeper
Helping and human service	Interpersonal understanding	• Empathy • Listening • Sensitivity to others • Awareness of others' feelings • Diagnostic understanding
	Customer service orientation	• Helping and service orientation • Focus on the Client's needs • Partnering the client • End-user focus • Attention to patient satisfaction
Impact and influence	Impact and influence	• Strategic influence • Impression management • Showmanship • Targeted persuasion • Collaborative influence
	Organizational awareness	• Playing the organization • Bringing others together • Awareness of client organizations • Using the chain of command • Political astuteness
	Relationship building	• Networking

		• Use of resources • Develops contacts • Personal contacts • Concern for customer relationships • Ability to establish rapport
Managerial	Developing others	• Teaching and training • Assuring subordinates' growth and development • Coaching others • Realistic positive regard • Providing support
	Directiveness: assertiveness and use of positional power	• Decisiveness • Use of power • Use of aggressive influence • Taking charge • Firmness in enforcing quality standards • Classroom control and discipline
	Teamwork and cooperation	• Group management • Group facilitation • Conflict resolution • Managing branch climate • Motivating others
	Team leadership	• Taking command • Being in charge • Vision • Group management and motivation • Building a sense of group purpose • Genuine concern for subordinates
Cognitive	Analytical thinking	• Thinking for yourself • Practical intelligence • Analyzing problems • Reasoning • Planning skill
	Conceptual thinking	• Use of concepts • Pattern recognition • Insight • Critical thinking • Problem definition • Ability to generate theories
	Technical/professional/ managerial expertise	• Legal awareness • Product knowledge • Expert helper image • Diagnostic skill • Commitment to learning

Personal effectiveness	Self control	• Stamina • Resistance to stress • Staying calm • Being not easily provoked
	Self-confidence	• Decisiveness • Ego strength • Independence • Strong self-concept • Willingness to take responsibility
	Flexibility	• Adaptability • Ability to change • Perceptual objectivity • Staying objective • Resilience
	Organizational commitment	• Businessmindedness • Mission orientation • Vision • Commitment to the command's mission

Appendix B

Survey Instrument

Workplace Competencies for Co-op Students Survey

Thank you for your participation in this research study. Prior to commencement, please review the following and indicate your consent to proceed at the bottom of the page.

- In order to participate in this study, the participant must meet all inclusion criteria.
- There will be no compensation provided to participants of this study.
- The study will consist of a fully anonymous online survey and participants may withdraw at any time during the completion of the survey. Incomplete surveys will be discarded.
- Once a survey is fully completed and submitted, participants will not be able to withdraw their survey as the data will have no identifying information of the participant.
- Participants may request initial survey results from kevin.oliver@umanitoba.ca approximately 2 weeks after the data collection stage closes, which is July 7, 2021.
- Data collected in this study will be used for the completion of a Master's thesis and if accepted, results will be presented in an academic journal (e.g. Journal of Work-Integrated Learning) and/or at conferences (e.g. World Association for Co-operative Education Conference).
- Any reference to specific survey results will be fully anonymous by using a general descriptor such as "One employer" or "One employers that hires students from the Faculty of Science".
- Survey data will exist on SurveyMonkey and downloaded to University of Manitoba servers and to a physical hard drive. SurveyMonkey data will be kept for a period of approximately 4 months at which time it will be destroyed whereas downloaded data will be kept for a period of 2 years and destroyed in approximately July 2023.

☐ **Please check this box to indicate that you understand the above statements and that you consent to participating in this study.**

The survey consists of three sections.

Section 1: Background and Demographic

There are 6 questions in section 1 that will be used during analysis to contextualize the data received from section 2, such as the students' field of study and your organization's size.

Section 2: Workplace Competencies

You will be asked to respond to 4 research questions for all 10 competencies selected for this study. Each page of the survey will include a single competency and its definition with the 4 research questions shown below. The research questions remain the same for all competencies.

Question 1 Indicate the importance the stated competency has for *recent graduates* in being able to successfully transition to the workforce in the field in which they study.
Question 2 Indicate the level that *co-op students* generally perform at for the stated competency during their co-op work term.
Question 3 Indicate (on average) how many work tasks you would typically assign to *co-op students* that support the development of the listed competency in a single work week.
Question 4 Indicate (on average) how many hours *co-op students* would spend on assigned work tasks that support in the development of the listed competency in a single work week.

Section 3: Open-Ended Question

You will be asked three open-ended questions pertaining to how you determine which work tasks to assign students. You will answer each question only once.

Note: For questions in Section 2 and 3, we ask that your answer be the best estimate for the *average* for however many co-op students you have supervised.

Section 1: Demographic Information

Question 1

Which faculty are the co-op students in which you supervise enrolled?

1	2	3	4	5	6
Asper School of Business	Faculty of Science	Faculty of Agricultural and Food Sciences	Clayton H. Riddell	Faculty of Architecture	Faculty of Engineering

Question 2

Where is your organization located?

1	2	3	4	5	6
Winnipeg, MB.	Brandon, MB.	Rural Manitoba	Canadian province other than Manitoba	The United States	International other than the United States

Question 3

How many employees work in your organization?

1	2	3	4	5	6	7
Fewer than 10	11-25	26-50	51-75	76-100	100-250	More than 250

Question 4

How many co-op work terms have you supervised at least one co-op student?

1	2	3	4	5	6	7
1-2	3-4	5-6	7-8	9-10	11-15	More than 15

Question 5

How many co-op students have you supervised in total, over all work terms?

1	2	3	4	5	6	7
1-2	3-5	6-8	9-11	12-14	15-25	More than 25

Question 6

How many weeks in duration are the co-op work terms for the students you supervise?

1	2	3	4	5	6	7
Less than 4 weeks	4 weeks	5 weeks	6 weeks	7 weeks	8 weeks	More than 8 weeks

Section 2: Research Questions

Section 2 will address the 4 research questions for the following list of 14 competencies. Each page of the survey will include a single competency and its definition with the 4 research questions. The research questions remain the same for all competencies.

Adaptability (perceptual objectivity, staying objective, resilience, behaviour is contingent on the situation, flexible, aptitude for learning and unlearning)
Analytical thinking and problem solving (thinking for self, reasoning, practical intelligence, planning skills, problem and data analyzing, systematic, linking ideas, critical thinking, insight, pattern recognition)
Creative/Innovative thinking (generate new ideas, resourceful, empathy as a tool, imagination)
Concern for order, quality and accuracy (monitoring, concern for clarity, reduces uncertainty, keeping track of events and issues, effective time management, completes tasks effectively and efficiently, detail-oriented)
Interpersonal collaboration (empathy, listening, sensitivity to others, conflict resolution, negotiating, reaching agreements, creating a good workplace climate, able to work with others on projects and teams)
Leadership (vision, concern for others, builds a sense of group purpose, decision making)
Oral communication (effective exchange of thoughts and information through speaking, listening and non-verbal cues, such as body language ((e.g. conducting presentations)
Organizational awareness (understands organization, knows constraints, power and political astuteness, cultural knowledge)
Technical knowledge (Field-specific practical knowledge, field-specific theoretical knowledge, depth and breadth, acquires expertise, donates expertise)
Written communication (effective exchange of thoughts and information through writing (e.g. emails, internal memos, reports, letters to clients, marketing))

Competency: Adaptability (perceptual objectivity, staying objective, resilience, behaviour is contingent on the situation, flexible, aptitude for learning and unlearning)

Question 1

How important would you say this competency is for recent graduates to successfully transition to the workforce in their field of study.

Importance	**1**	not at all important	No relevance for recent graduates in this field.
	2	Very little importance	Very few workplace applications. Weaker performance would not affect job roles.
	3	Little importance	Some workplace application. Weaker performance would not affect job roles.
	4	Useful	Several workplace applications. Reasonable performance needed for a handful of job roles.
	5	Important	Several workplace applications. Reasonable performance needed for most job roles.
	6	Highly important	Many workplace applications. Reasonable performance needed for all job roles.
	7	Crucial	Many workplace applications. High level performance needed for all job roles.

Question 2

At what level would you say that co-op students generally perform this competency by the end of their co-op term?

Performance	**1**	Very poor	The low performance of the competency would be noticeable to most and a significant hindrance in the workplace
	2	Poor	The low performance of the competency would at times be a hindrance in the workplace
	3	Needs improvement	Demonstrates some competence but is short of what would be considered baseline expected performance of a recent graduate

	4	Marginal	Performs at the baseline level of expected performance for a recent graduate
	5	Good	Demonstrates competence and performs at a level above expected baseline performance for a recent graduate
	6	Very good	Demonstrates competence well above expected baseline performance of a recent graduate
	7	Excellent	Demonstrates competence at a level of an excelling experienced professional

Question 3

How many work tasks would you assign to a co-op student that support the development of this competency in a typical work week?

1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
0	1-2	3-4	5-6	7-8	9-10	11-12	13-14	15 or more

Question 4

How many hours in a typical work week would a co-op student spend on work tasks that would be expected to help develop this competency?

1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
0	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36 or more

Section 3: Open-Ended Questions

Question 1

What considerations (positive or negative) impact the type of work tasks you assign to co-op students?

Question 2

Are these considerations often competing such that you cannot easily manage all of them? If so, how do you reconcile, or prioritize these considerations when assigning work?

Question 3

What changes, if any, would you recommend to the current co-op program to improve co-op students' development of highly sought-after competencies?

Appendix C

Study Invitation

Dear [insert employer name],

My name is Kevin Oliver and I am working on a Master's degree in Education at the University of Manitoba. I am writing to you to solicit your participation in a study I am conducting that examines co-operative education across various fields. The results of this study will be published in my thesis and if accepted, a journal and presented at conferences on co-operative education.

The overall aim of this study is to provide clear direction for the development of a process evaluation tool that examines the importance of student employability competencies and the necessary tasks to foster their development. More specifically, this study will explore the following research questions:

1. How important is each employability competency among recent graduates?
2. How well do co-op students perform in each competency?
3. How frequently do employers assign co-op students work tasks that foster the development of each competency?
4. How many hours do co-op students engage in work tasks that foster development in each competency?

In order to participate in the research study, you must meet the following criteria:

- Your organization must have a formal agreement with the University of Manitoba to hire students enrolled in co-op education;
- Must have supervised 1 or more co-op students in at least 2 work terms; and
- Must have supervised at least 1 co-op student within the last 24 months.

Participating in this study will consist of completing an online survey that includes two main parts: (1) a few demographic questions (e.g., size of organization, discipline area), and (2) items pertaining to each of the above research questions to examine selected employability competencies.

Please note, all survey submissions will be anonymous and kept confidential. If you would like a copy of the overall results or have any questions, please contact either myself (Kevin Oliver) at Kevin.Oliver@umanitoba.ca, or my thesis supervisor, Dr. Robert Renaud at (204) 474-9017, Robert.Renaud@umanitoba.ca. If you are interested, meet the inclusion criteria for participating in this research study, and consent to participating, please follow the link at the bottom of this email to the online survey tool. The total time to complete the survey is approximately 30 minutes.

This study has received ethics approval from The University of Manitoba.

Thank you very much.

Appendix D

Competency Ratings – Importance, Performance and Frequency

	Importance[1]	Performance[2]	Tasks/week[3]	Hours/week[4]
Adaptability	70 5.9 0.8	70 5.2 0.6	68 3.4 1.7	69 4.2 2.0
Analytical thinking and problem solving	69 6.2 0.7	69 5.1 0.8	68 4.0 2.0	69 5.1 2.2
Creative/innovative thinking	67 4.9 1.0	67 4.7 0.8	66 3.0 1.7	67 3.4 1.9
Concern for order, quality and accuracy	66 6.1 1.0	66 5.1 0.9	65 4.4 2.1	66 5.2 2.3
Interpersonal collaboration	66 5.5 1.1	66 5.0 1.0	65 3.6 1.9	66 4.2 2.2
Leadership	64 4.2 1.1	64 4.3 0.9	63 2.5 1.6	64 2.7 1.7
Oral communication	64 5.7 0.9	64 4.8 1.0	63 3.5 1.8	64 3.7 2.0
Organizational awareness	64 4.3 0.9	64 4.3 0.9	63 2.4 1.7	64 2.6 2.0
Technical knowledge	64 5.5 1.2	62 5.0 1.1	63 4.6 2.4	64 5.5 2.4
Written communication	63 5.6 0.9	63 4.7 1.0	63 3.8 2.0	64 3.7 1.8

[1]How important is each employability competency among recent graduates?
[2]How well do co-op students perform in each competency?
[3]How frequently do employers assign co-op students work tasks that foster the development of each competency?
[4]How many hours do co-op students engage in work tasks that foster development in each competency?
Note. Within each cell - top, middle, and bottom values represent sample size, mean and standard deviation respectively.