



**National Educational Association
of Disabled Students**
Association nationale des étudiant(e)s
handicapé(e)s au niveau postsecondaire

Landscape of Accessibility and Accommodation in Post-Secondary Education for Students with Disabilities

Report by the National Educational Association of
Disabled Students (NEADS)

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Executive Summary

The 'Landscape of Accessibility and Accommodation' project represents a thorough examination of the current landscape of accessibility, services, accommodations, technical equipment and supports for students with disabilities at publicly-funded post-secondary institutions across Canada. This research on post-secondary access and services is timely. It contributes to the Government of Canada's emphasis on access to education and training for persons with disabilities, leading to their participation in the competitive labour market. More specifically, the purpose of this project and summary report has been to inform the Government of Canada's consultation on the development of a new federal disability act.

The project was funded primarily through a contribution agreement and significant funding from the Social Development Partnerships Program of Employment and Social Development Canada. We thank the Government of Canada for supporting this important initiative. We would also like to acknowledge with thanks grant funding from the Canadian Education and Research Institute for Counselling (Counselling Foundation of Canada) and the Ontario Human Capital Research and Innovation Fund (Ontario Ministry of Colleges and Universities).

The project included a team of researchers working across Canada in Ottawa, Toronto, at Simon Fraser University in British Columbia, Assiniboine Community College in Manitoba, and Memorial University of Newfoundland and Labrador.

It's important to note that we employed about 15 graduate students with disabilities to conduct most of the research in locations across Canada.

Through our consultations with students with disabilities, faculty, staff and policy makers across the country within the Canadian post-secondary system, we have consistently heard several key messages:

- In many ways, accessibility remains silo'ed within post-secondary education; progress toward models of inclusion and universal design is slow and exists in pockets across the country;
- Good faith efforts to improve accessibility and inclusion for students with disabilities exist within the post-secondary system;

- Accessibility and inclusion efforts in the post-secondary environment have lagged behind the evolution of the student experience, and are limited to the academic (classroom and online learning) environment; in particular, accessibility in the co-curricular, professional development and work-integrated learning spaces needs to be developed; The intersectionality among universal design for learning, differentiated instruction, and essential requirements for courses, programs and disciplines in the context of accessibility and individual students' learner pathways has not been effectively understood within the post-secondary context;
- Significant transition barriers into, between, and out of levels of post-secondary education remain, with particular challenges faced by students transitioning into post-secondary, and from post-secondary into the labour market;
- Accessibility and inclusion in the post-secondary environment are lagging behind technological advances; we continue to focus on specialized assistive solutions, as opposed to mainstream technological solutions, to accessibility challenges; and,
- Strong regional and provincial disparities exist within respect to institutional and provincial policies and practices around accessibility and inclusion in post-secondary education.

Continued progress toward a universally designed and inclusive post-secondary education environment for all students requires a renewed and nationwide commitment toward this goal. Ultimately, work in this space needs to adhere to two primary guiding principles:

1. Recognition of the student's individual lived experiences and learner journey, and the impact they have on the student's accessibility needs in education and employment, particularly as related to the interactions among social assistance, financial aid and lived circumstances with the educational environment.
2. Accessibility and inclusion legislation, policies, practices and guidelines must recognize the evolving nature of disability and accessibility for individuals over time (particularly for individuals with chronic, episodic and degenerative disabilities), and in consideration of the evolving nature of the interaction among disability, technology, and the learning and workplace environments

In this report, we provide a series of legislative recommendations, as well as recommendations for key stakeholders (federal and provincial governments, institutions, service providers, and professional societies, among others) which are intended to further progress toward accessibility and inclusion in Canadian college and university education.

Key Messages

Social Determinants of Health and the Postsecondary Learning Environment

Key Message: Disability is part of the range of human experience, and human variation, and this perspective should inform our perspectives on post-secondary education and the learning environment

Key Message: Post-secondary education is a social determinant of health – a means to employment, economic stability, and overall health and longevity

Evaluating the Postsecondary Landscape for Students with Disabilities, 1990s-2010s

Key Message: Advances in technology, infrastructure and legislation, coupled with changes to the demographics of students with disabilities in university and college education, means that our policy frameworks need to evolve to remain current with the changing needs of learners.

Grounding Accessibility in Post-Secondary Education in the Student's Life Context

Key Message: Students with disabilities experience an additional 'cognitive load' associated with navigating their lived experience with a disability, both within and external to the educational environment. Accessibility within the post-secondary environment must therefore take into consideration the student's lived experiences external to their education, which may impact their education.

Equity, Diversity and Inclusion in Canadian Post-Secondary Education

Key Message: Measures of representation and diversity (i.e., headcounts of persons with disabilities in post-secondary institutions and programs) are not reflective, nor representative, of measures of inclusion.

Key Message: Diversity and disability ought to be considered as learning style elements, not as demographic labels.

Characteristics of the Students with Disabilities Population in Canada

Key Message: The population of students with disabilities in Canada is diverse and multi-faceted, and it is not practical to develop a profile of the “typical” student with a disability.

Key Message: Individual circumstances (including other elements of social identity, employment and housing situation) are likely to impact the student’s learner pathway and need to be taken into consideration in evaluating accessibility and the student experience.

Students with Disabilities in Graduate Education: The 2016 Canadian Graduate and Professional Student Survey Data

Key Message: Graduate students with disabilities experience their educational journeys in subtly and overtly distinct ways from their non-disabled peers.

Key Message: Overall, graduate students with disabilities experience lower levels of satisfaction, both academically and socially, and identify as having greater difficulty navigating the academic, professional development and campus social environments at their institutions.

Undergraduate, Professional and College Student Datasets

Key Message: Significant disparities exist between the university and college sectors with respect to the nature and type of student engagement datasets in Canada.

Key Message: A nationwide college student engagement survey, utilized by a majority of publicly-funded college campuses, does not exist, and presents a significant barrier to a comparative understanding of the college experience of students with disabilities. Province-by-province disparities in the collection of college student engagement data also exist.

Environmental Scan of Institutional Policies

Key Message: Institutional policies around accessibility and accommodation are variably and inconsistently implemented nationwide. Geography, institution type and governance structure are reflected in the currency and extent of institutional buy-in for accommodation policies.

Attitudinal Barriers and the Accommodation Model

Key Message: Attitudinal barriers, such as the 'gatekeeper function' of those who determine whether or not an accommodation will be made (e.g., staff at Disability Services Office; faculty/instructors who receive accommodation requests), are based on implicit biases and a lack of training and experience, and often negatively impact the experience of students with disabilities.

Key Message: The current accommodation model, based primarily on a disclosure of needs framework, forces students to 'legitimize' their accessibility requirements, and adds stresses and cognitive load to the educational journeys of the students.

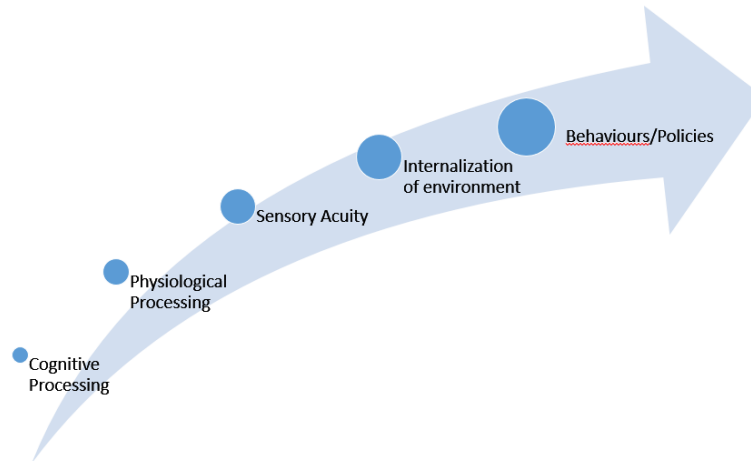
Key Message: Self-advocacy, intended to be a tool that benefits the student, can perpetuate the very issues of discrimination, labelling and legitimization that it is designed to resolve.

Key Message: The accommodation model and self-advocacy framework need to be re-imagined according to the principles of inclusion and universal design.

Documentation and Triage of Students with Disabilities

Key Message: Differing operational definitions of disability and/or levels of functional impact between institutions may negatively impact students' likelihood of receiving needed accessibility solutions for their educational journeys.

Figure 1 Projected Meaning we Derive from Environment & Human Variation



How we Internalize environments, and each others' Variations – Forms Meaning, and Bias

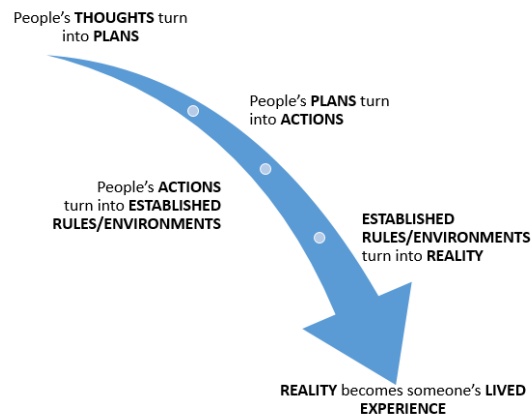


Figure by Michaela Burton, Primary Author & Researcher

Legitimization & Cognitive Overload

Key Message: Cognitive overload as a result of the need for legitimizing one's accessibility requirements in post-secondary education can negatively impact a student's educational journey and mental health.

Consequences of the Accommodation Model in Postsecondary Education

Key Message: Students with disabilities may experience significant barriers in their university or college education and in becoming full participants in society, resulting from implicit biases in the perception of their social identities.

Key Message: Student success in navigating the accommodation model in post-secondary education does not translate to recent graduate success in the workforce.

The Evolution of the Student Experience, 1990s-2010s

Key Message: The student experience in post-secondary education has evolved over the past 20 years to include not just the academic learning environment, but also the co- and extra-curricular spaces within university and college, as well as work-integrated learning, academic employment and the campus social environment. Accessibility for students with disabilities attending colleges and universities needs to integrate all aspects of the student experience, not just the classroom learning context.

Admissions and Student Transition

Key Message: Significant structural, navigational and environmental differences exist between the K-12 and post-secondary learning environments. A strong need exists for students with disabilities to understand the cultural differences between these stages of education, and to learn effective management strategies.

Key Message: Equal access to technology – both mainstream and assistive – is essential in fostering student success in their educational journeys. Legislative and governmental programs to ensure technology literacy and access are beneficial to students from diverse backgrounds, in order to achieve equal access and equal opportunity for success.

Key Message: Mainstream devices are beginning to supplant specialized assistive technologies in some applications, and their eligibility as educational aids in funding for studies and assistive device provision programs ought to be considered.

Key Message: A single set of standards for disability documentation, focused on functional impact of disability and accessibility requirements, ought to be established, and should be 'portable' for students nationwide.

Essential Requirements, Differentiated Instruction, and Accessibility

Key Message: Designing effective accessibility solutions for students with disabilities requires knowledge of the essential requirements of the course, program or discipline, as well as the functional impact of the student's disability(ies) in the context of the learning environment(s) the student is in.

Key Message: Disability can be conceived of as different learning styles – differences in how we envision the world around us, and differences in how we take in, process and communicate information.

Key Message: Recognizing that every student is a unique learner, with unique learning needs, enables a perspective shift among educators and policy makers to embed accessibility as a way of thought within the post-secondary education system.

Key Message: Accessibility solutions may be beneficial to other students' diverse learning needs, not only to students with disabilities.

Breaking the Silo'ed Approach to Accessibility

Accommodations: Toward Universal Design in the Post-Secondary Learning Environment

Key Message: A universally designed post-secondary education environment recognizes that space, learning and the human environment must all be accessible and inclusive.

Key Message: A universally designed human environment within post-secondary education takes into account the principles of flexibility, dynamism, collaboration, positive relationships, essential requirements, and the many aspects of student life.

Accessibility of STEM Careers in Canada's Knowledge Economy for Youth with Disabilities

Key Message: Training and employment in science, technology, engineering and mathematics (STEM) disciplines are increasingly important in Canada's growing knowledge economy.

Key Message: Youth with disabilities are under-represented in STEM disciplines and STEM careers.

Key Message: Youth with disabilities face many barriers to participation in STEM careers, including educator and employer preparedness, awareness and attitudinal barriers.

Key Message: Work-integrated learning (or pre-employment learning) experiences are important for both employers and youth with disabilities in STEM fields, in order to provide needed exposure for both the youth and the employer.

Key Message: Appropriate mentorship and the existence of role models in their careers are crucial to the professional development of youth with disabilities in STEM fields.

Key Message: Employer peer mentorship through professional networks is important to ameliorating employer attitudes around youth with disabilities in STEM.

Key Message: Programs fostering the adoption of universal design practices within the workplace will ameliorate barriers faced by youth with disabilities in STEM careers, as it does in the post-secondary academic learning environment.

The Co-Curricular Learning Environment in Post-Secondary Education

Key Message: The co-curricular learning environment is an increasingly important space within the college and university settings but is one that has been developed without concurrent thought to accessibility support.

Key Message: Navigating the co-curricular learning environment in the absence of established accessibility supports presents a significant barrier to, and increases the cognitive load of, students with disabilities.

Key Message: Students with disabilities, in managing their lived experience, accumulate experiences that mirror those obtained through formal co-curricular learning.

Professional Development

Key Message: Persons with disabilities remain underrepresented in the labour force. Post-secondary student experience, in particular professional development programming, have become increasingly essential to the employability of students. However, these programs are not often accessible to students with disabilities, and represent a significant barrier to their employability.

Career Transition and Career Education

Key Message: Many barriers to employment for students and recent graduates with disabilities link to career transition supports and the co-curricular program environment within the post-secondary system.

Key Message: Post-secondary institutions' career exploration offices, as well as government programs and legislative priorities, play an important role in influencing employer attitudes around disability

Key Message: Sustained programming – e.g., mentorship, networking, and one on one engagement – enhances the likelihood of employment for students with disabilities, and enhances employer attitudes toward employees with disabilities through prolonged exposure

Key Message: Transition support programming is beneficial in preparing students for the workforce, and for ensuring they are appropriately ready for the different accommodation frameworks in place in the workplace compared to the educational environment

First Nations, Métis, and Inuit Students With Disabilities

Key Message: A significant gap exists in our understanding of the experiences of students who self-identify as Aboriginal, a term used inclusive of Canada's First Nations, Métis, and Inuit peoples, and as living with a disability – within the research literature and within practice.

Accessing Student Services

Key Message: Students have often looked at their engagement with student services portfolios as a “one stop shop” and have worked through their disability/accessibility services offices. Meanwhile, student services staff are often lacking appropriate training in working with students with disabilities.

Key Message: Student Experience is comprised of social integration & academic integration. To change culture around accessibility, there needs to be supplementary advocacy.

Key Message: Implicit Bias is an inefficiency to the Accommodation Model.

Key Message: Institutions require support that will provide Universally Designed learning environments that are founded upon empirically grounded research.

Section A. Here's What We've Done

The 'Landscape of Accessibility and Accommodation' project represents a thorough examination of the current landscape of accessibility, services, accommodations, technical equipment and supports for students with disabilities at publicly-funded post-secondary institutions across Canada. This research on post-secondary access and services is timely. It contributes to the Government of Canada's emphasis on access to education and training for persons with disabilities, leading to their participation in the competitive labour market. More specifically, the purpose of this project and summary report is to inform the Government of Canada's consultation on the development of a new federal disability act.

The 'Landscape' research to-date has achieved the following Project Objectives:

1. Assessment of the landscape of academic accommodations for students with disabilities in the Canadian post-secondary education sector, as it has evolved over the past 20 years of legislative, attitudinal, technological and demographic change;
2. Assessment of the landscape of co-curricular and experiential learning accommodations for students with disabilities in the Canadian post-secondary education sector, in order to establish a benchmark for best practices and future directions in this area;
3. Assessment of the landscape of accessibility and accommodation practices for students with disabilities in transitional spaces: post-secondary admissions, transition to employment programming, and student mobility between institutions;
4. Assessment of the evolution toward the principles of accessibility and universal design in working with students with disabilities in Canadian post-secondary education;
5. Providing commentary on accessibility and accommodation within the academic and co-curricular learning environments in the context of: Trades; college certificate/diploma programs; university undergraduate programs; first- and second-entry progression degree programs; and, professional and research-stream graduate programming;

6. Understanding trends in accessibility and accommodation within Canadian publicly-funded colleges, primarily undergraduate universities, comprehensive universities and medical/doctoral universities;
7. Establishing a national collaborative network of consumers, academics and practitioners in the intersection between higher education policy and student experience for students with disabilities in Canada.

To achieve these goals, we undertook a series of research initiatives, outlined below:

1. An environmental scan and analysis of public-facing accessibility policies at publicly-funded Canadian colleges and universities.
2. A literature review of existing research into services, accommodations and supports for persons with disabilities in Canada's post-secondary system. This review was Canadian focused, but also included international literature and studies.
3. Analysis of large national or provincial student engagement datasets that included the disability demographic question, in order to understand comparative measures of the student experience for students with disabilities relative to the overall population of students. These datasets included:
 - A. The *Canadian Graduate and Professional Student Survey (CGPSS)* 2016 instrument, administered to graduate students at participating universities nationwide;
 - B. The *Canadian University Survey Consortium (CUSC)* instrument, administered to 1st year, mid-year and graduating undergraduate students (2014-2016) at participating universities nationwide; and,
 - C. The *Ontario College Student Satisfaction Survey (OCSSS)* 2016 instrument, administered to college students in Ontario.
4. Analysis of the CGPSS dataset is complete; analyses of the CUSC and OCSSS datasets are in progress and will be completed in early Fall 2018.

5. A cross-disability, bilingual online survey of college and university students with disabilities covering topics associated with accessibility and accommodation, which may include, but not be limited to: physical access, academic accommodations, accommodations in the co-curricular setting, adaptive/technical equipment, provision of academic materials in formats of choice, mental health services, mentoring, cooperative education/internships opportunities, and social inclusion.

The survey instrument has been designed and is going through ethics approvals for deployment in fall 2018. Analysis of this dataset will be completed in early 2019.

6. Consultations with accessibility/disability services staff, student life professionals and other relevant academic leaders at national conferences of those stakeholder groups. Stakeholder groups and conferences were attended over the course of one calendar year (March 2017-February 2018), and included representatives from the following sectors:

- Senior academic administrators (college and university)
- Graduate deans
- Faculty and higher education researchers
- Teaching and learning staff and faculty
- Student services directors
- Student life and professional development professionals
- Career educators
- Co-op placement officers
- Student financial aid administrators
- Disability services staff
- Accessibility experts
- Counsellors and campus mental health staff
- Librarians
- Providers of academic materials in accessible formats

Section B. Reflections on the Landscape of Post-Secondary Education in Canada

Social Determinants of Health and the Post-Secondary Learning Environment

Key Message: Disability is part of the range of human experience, and human variation, and this perspective should inform our perspectives on post-secondary education and the learning environment

Key Message: Post-secondary education is a social determinant of health – a means to employment, economic stability, and overall health and longevity

Social determinants of health (SDH) are increasingly recognized as leading culminate, and compounding factors that are part of the human experience in shaping health, and health outcomes throughout the lifespan (McGibbon & Etowa, 2007; McGibbon, 2009; McPherson & McGibbon, 2010). In today's Canadian landscape, the Canadian Council on Social Determinants of Health has advised on 7 leading frameworks that unpack simultaneous variables that determine health other than biological endowments and genetic predispositions, to include: income, living environment, education, working environment, childhood experiences, and quality of life (PHAC, 2008; CCSDH, 2015; Raphael, 2009; Raphael, Bryant, & Rioux, 2006).

Higher Education is becoming increasingly recognized by authors as a social determinant of health within a globalized knowledge economy (Harrison, 2015; Jung, 2002; Mitrou, 2014; Shankar, 2013). Gaining access to skills such as 'computer literacy' has become a basic prerequisite to earning stable employment and meeting basic needs for standard quality of life in a North American Context (England, 2003; Fichten, 2003).

However, based on a scan of the current Canadian landscape, there is a suggestion that students who identify with a disability are at an increasing disadvantage from a health inequities perspective, and social determinants of health perspective, when applying an intersectional framework (Bauer 2013; Benoit, 2013; Fichten, 2003; Jung, 2002; Mitrou, 2014; Reed & Curtis, 2012; Raphael, Bryant, & Rioux, 2006; Ostrowski, 2016; O. Hankivsky and A. Christoffersen, 2008; Shankar, 2013).

For example, individuals who identify with a disability and who complete a post-secondary education earn significantly less and have a harder time securing a stable form of employment (NCD2007; Roeher Institute 2004; Shier, Graham, and Jones 2009; Zarifa, 2015). Robson et al.'s (2014) study on special needs high school students from the Toronto District School Board found that disability impacted post-secondary education enrollment rates, noting that students with disabilities were far more represented at the college level, while being less likely to pursue a university degree.

A person's perceived social identity has become critically important for understanding practical health outcomes such as quality of life, or social downward mobility that is associated with chronic illnesses (Benoit et al. 2005, 2010; Jansson et al. 2010; Jung, YEAR The Earnings and Employment Outcomes of the 2005 Cohort of Canadian Postsecondary Graduates with Disabilities; Olena Hankivsky 2012; Shankar 2013;).

Intersectionality and the Learning Process

A Federal Accessibility Legislation that first recognizes *human* variability, within a greater context of *social* variability, will be the beginning of the journey towards a more accessible and inclusive Canada. Hankivsky (2008) writes about the urgency of incorporating an intersectional framework for developing policy, conducting research, and rationalizing more practically, when it comes to handling issues around citizens' health determinants, and closing severe inequities in health care, and education for groups who continue to be excluded (Hankivsky & Christoffersen, 2008). The strength in intersectionality as a foundation to understanding learner experience, and identity, is the 'multiple interconnecting impacts of policies and practices on different groups... [acknowledging] the historically situated and always emergent power of structures (Lee, 2005).

An Intersectional framework is marked as an integrative and dynamic approach which addresses fluid and shifting processes of time and location for social agents; analyses 'moves beyond single or typically favoured categories of analysis' such as sex, gender, race, socioeconomic status, creed, religion, and considers the simultaneous interactions between social identity as well as the impact of systems and processes of oppression and domination (Hankivsky & Cormier, 2009).

Regarding intersectional health research, Bauer points out that discussions around intersectional identity and social determinants are not only relevant,

but important in the context of social labelling which occurs within Canadian Post-Secondary Education institutions.

An increasing emphasis has been placed upon the notion of *perceived social position*, such as the medical model of disability which exists in the accommodation model. This differs largely from *perceived social identity*; the former referring to the 'social objective measurement' by which one is perceived and treated by others (Bauer, 2014; Holt 2008).

Though one may *identify* as a complex of variable traits, which can shift in accordance to time and place, the perceived social position is what is understood by others and that can affect the individual's health (Bauer, 2014; Hankivsky, 2008).

Evaluating the Post-Secondary Landscape for Students with Disabilities, 1990s – 2010s

Key Message: Advances in technology, infrastructure and legislation, coupled with changes to the demographics of students with disabilities in college and university education, means that our policy frameworks need to evolve to remain current with the changing needs of learners.

The National Educational Association of Disabled Students (NEADS) previously conducted a national review of accessibility in post-secondary education in the late 1990s (*Towards A National Approach To Services for Students with Disabilities in Canada*, 1999, funded by Human Resources and Skills Development Canada and Ontario's Trillium Foundation). In undertaking this project, in order to define its scope, we framed an initial question of, "What has changed in the post-secondary sector over the past 20 years?" Our initial assessment identified the following key changes that were worth consideration in the development of this project, and its associated methodology and consultations.

Demographics. As noted previously in this report, the absolute numbers of students with disabilities attending Canadian colleges and universities has increased tremendously in the past 30 years. This increase is driven by huge increases in the numbers of students with learning disabilities, mental health issues, chronic medical conditions and acquired brain injuries, or who are on the autism spectrum, while the numbers of students with physical or sensory (sight/hearing loss) disabilities have remained relatively constant.

Understanding of Disability and Functional Impact. Our understanding of, and appreciation for, chronic, degenerative and episodic disabilities has also grown significantly in the past 20 years, as has our recognition that medication of a person's physiological condition may itself impact their ability to function. Furthermore, there is a growing understanding of the potential for the interaction between a person and their environment in the framing of disability and functional impact – disability can be situational in nature, dependent on environmental factors and circumstances.

Disruptive Technology. The past two decades has brought significant technological advances to everyday living and the educational environment, the most obvious of these being smartphone/tablet technology. Such mainstream devices have inherent accessibility features or run apps for accessibility that have changed the way persons with disabilities interact with the world around them.

International Treaties. Two landmark international treaties have significant potential to impact education policy in Canada – the *United Nations Convention on the Rights of Persons with Disabilities (CRPD)* and its *Optional Protocol* (2008); and, the *Treaty of Marrakesh* (2015). While the *CRPD* establishes education as a basic human right, this focuses more on primary/secondary education. Canada has the opportunity to embrace its role as a leader in ensuring that post-secondary education is also considered as a basic human right for persons with disabilities. The *Marrakesh Treaty*, of which Canada was the 20th ratifying country in 2017, mandates publishers to produce books, including educational textbooks, in accessible formats, and has the potential in the years to come to significantly impact the provision of accessible format educational materials for students with disabilities.

Evolving Provincial and National Legislative Frameworks. Ontario and Manitoba currently have disability legislation (the *Accessibility for Ontarians with Disabilities Act, 2005*, and the *Accessibility for Manitobans Act, 2014*), while other provinces including British Columbia and Nova Scotia are developing or considering legislation. Significant human rights cases have also been heard by human rights commissions in British Columbia, Manitoba and Ontario, to name a few, that impact accessibility documentation and the provision of accommodations to students and trainees with disabilities in post-secondary education.

Evolution of the Post-Secondary Student Experience. Post-secondary institutions – particularly universities – have a growing awareness of their

role in holistically preparing their students for entry into the workforce and have responded to this by changing the dynamics of the student experience in significant ways. We will review these changes in a subsequent section.

These sea changes in the landscape of college and university education have significant ramifications for students with disabilities, which were investigated and are reviewed within the following pages.

Grounding Accessibility in Post-Secondary Education in the Student's Life Context

Key Message: Students with disabilities experience an additional 'cognitive load' associated with navigating their lived experience with a disability, both within and external to the educational environment. Accessibility within the post-secondary environment must therefore take into consideration the student's lived experiences external to their education, which may impact their education.

Transition to post-secondary education in North America can be thought about as a rite of passage into adulthood. Indeed, many students will move away from their parents' homes and live on campus while attending their first years of college or university. Students are expected to take more control of their educational advocacy, navigate the post-secondary setting without parental support, and independently gain an appreciation for the 'hidden curriculum' within post-secondary education. We return to some of these themes later in this report, in examining issues of transition into post-secondary education (see Section C); here, we note that while the student navigates the post-secondary environment, they are also expected to navigate life, more generally, as newly-minted adults. This makes it very difficult to separate *education-related* themes from *life-related* themes.

Students with disabilities, in addition to navigating the life transitions associated with attending post-secondary education, must also think through complex systems and scenarios that their non-disabled peers may not, including:

- The logistics of transportation;
- Accessible housing;
- Management of rehabilitation services relevant to their post-secondary education experience;
- Managing access to assistive technology and/or appropriate medication;

- Access to accessible format materials;
- Learning use of assistive technology; and,
- Interacting with others around their education-related accommodations

These 'extra' activities lead to an impact on the student's time management, efforts and priorities (a 'cognitive load') which must be taken into consideration in conversations around accessibility in post-secondary education.

It is essential that resources are not only equally accessible within the formal educational setting from K-12 through to post-secondary, between transitions, and at all points in the education journey, but also that *periphery environments* that effect learning and learning outcomes, such as accessible housing, time spent at medical appointments, etc., remain equally accessible from the perspective of *human-machine systems*.

Equity, Diversity and Inclusion in Canadian Postsecondary Education

Key Message: Measures of representation and diversity (i.e., headcounts of persons with disabilities in college and university institutions and programs) are not reflective, nor representative, of measures of inclusion.

Key Message: Diversity and disability ought to be considered as learning style elements, not as demographic labels.

In conducting the research and consultations for this project, we noted an interesting tension developing within the post-secondary sector – this being the distinction needing to be drawn between *diversity* (a 'representational' term) and *inclusion* (an 'experiential' term). Often programs and institutions will quantify and point to measures of diversity on campus as symbols of increasing attention to diversity and disability.

A case in point is the increasing numbers of persons with learning, mental health, chronic medical and autism spectrum disabilities on campus. The proportion of persons identifying with lived experiences in those spaces on campus today is 92% of all students registering with the disability services offices. Thirty years ago, when institutional and governmental disability policies were first being developed, only 10% of students with disabilities identified with lived experiences in those spaces. What this diversity statistic

hides is the fact that the absolute numbers of students with physical, visual, and hearing disabilities on campus relative to the entire population of students have remained essentially unchanged in thirty years, despite significant advances in technology and physical infrastructure.

A more simplistic example comes from the measurement of diversity and disability statistics in professional programs, particularly within healthcare. Although low, the numbers of students with disabilities in several healthcare disciplines continues to increase – and while the increase itself is a positive, it hides a disturbing reality: the environment within these programs may not always be inclusive of students with disabilities. Indeed, anecdotal evidence gathered to date suggests that students entering a program with a disability have significantly more challenges (attitudinal from faculty, preceptors and peers; accessibility of accommodation; legitimization of disability; etc.) than do students who acquire a disability while in the program or young professionals who acquire a disability after graduation.

In essence, a diverse environment does not imply an inclusive one, and vice versa. An emphasis on diversity measures encourages an emphasis on intake and recruitment programming. Meanwhile, an emphasis on inclusion measurement encourages – and potentially rewards – a holistic commitment to a fully accessible and universally designed environment, a commitment that recognizes that full inclusion comes from removal of barriers to entry and transition within post-secondary, as well as removal of ‘environmental’ barriers within programs and the student experience.

Thus, diversity measures do not reflect inclusion measures. Diversity is not the same as inclusion, and one cannot be mistaken for the other. Policy makers, legislators, researchers, and other stakeholders must take this into account in program planning and outcome measurement, as well as in longitudinal tracking of data on student engagement and student success in post-secondary education.

Moreover, diversity as a concept continues to be shaped and transformed in today’s Canadian landscape. Our research suggests that there ought to be a consideration for how a person’s identity impacts their access, and how their access impacts their identity. Hanvisvsky (2008) makes the point that intersectionality of multiple social identities must be considered as a paramount ‘top of mind’ factor when thinking about health outcomes from a longitudinal approach, and that multiple factors are dynamically shaping people’s lives and their health outcomes (Hankivsky, 2008).

Using an applied example, Robson et al.'s (2014) study focuses on learner pathways, and specifically on students who identify as 'students with special needs' from the Toronto District School Board; beside disability labelling having a significant effect on post-secondary enrollment rates, students with disabilities from diverse backgrounds such as ethnic or racial identifiers, or socio-economic status were far more represented at the college level, while being less likely to pursue a university degree.

These findings are representative of Canada's current landscape. According to the Canadian Human Rights Commission, based on the 2012 Canadian Survey on Disability (CSD) for Canadian adults aged 15 and over who reported having a disability, persons with disabilities are less likely to have a post-secondary education at the university level compared to persons without disabilities (OHRC, 2017: 9). When it comes to the actual 'value' of the post-secondary degree, authors such as Fairweather and Fichten raise the point that the need to acquire credentials are not only completely crucial from an absolute value perspective, but from a social networking perspective (e.g., Government of Canada, 1999; Human Resources Development Canada, 2002; Pettigrew, 1998; Fairweather, 2006).

Universal Design for Instruction authors shape the conversation around the notion of 'diversity' not necessarily as a demographic label but as a learning style of each student that can be supported (Burgstahler, 2011; Kraglund-Gauthier et al. 2014; Kumar, & Wideman, 2014). Moreover, the current North American literature suggests that 'diversity' in formal Canadian post-secondary classrooms is increasingly diverse, where learning strategies as a culture must adapt (Burgstahler, 2011; K. L. Kumar, M. Wideman, 2014; Kraglund-Gauthier et al. 2014; American Council on Education, 2005; Fichten, Jorgensen, Havel, & Barile, 2006; National Center for Education Statistics, 2011; National Council on Disability, 2003; U.S. Government Accountability Office, 2009).

Tensions around accommodations continue to be reiterated by Universal Design for Instruction authors who articulate the inherent barriers that are embedded in the unsustainable support that is provided to support 'diversity' in learning, specifically for students with disabilities (Katz, 2016; Burgstahler, 2011; Kraglund-Gauthier et al. 2014; Roberts, Park, Brown, & Cook).

Some authors who examine invisible disabilities, or 'episodic,' non-visible disabilities, provide critical analyses about the current conflicts that are

embedded in Canadian Post-secondary environments around accommodations that are sometimes prone to negative bias, or rejection from superiors such as extra time, note-takers, alternative formatting, learning strategists, as just a few examples (Condra, M. & Condra E, M. 2015; Harrison 2015; Pardy; Reed, MJ; Lund-Lucas, E; O'Rourke, K, 2003).

Characteristics of the Students with Disabilities Population in Canada

Key Message: The population of students with disabilities in Canada is diverse and multi-faceted, and it is not practical to develop a profile of the “typical” student with a disability.

Key Message: Individual circumstances (including other elements of social identity, employment and housing situation) are likely to impact the student’s learner pathway and need to be taken into consideration in evaluating accessibility and the student experience.

Adele Furrie conducted a detailed analysis of the 2012 Canadian Survey on Disability (CSD; Statistics Canada) for our Landscape of Accessibility Project, focusing specifically on reporting on the education and employment experiences of Canadians with disabilities in college or university programs of study. Survey responses included in our analysis comprised persons who were enrolled in post-secondary institutions in the 2011-2012 academic year and/or having been enrolled in post-secondary education in the 2007 to 2012 time frame.

The manner in which the data were collected on type of post-secondary education precludes the possibility of identifying the population who are attending or did recently attend non-university publicly-funded institutions. Therefore, the 2012 CSD can divide the population of 325,170 adults with disabilities who are attending or recently attended post-secondary institutions into those attending/recently attended university (117,990) and those who are attending or recently attended non-university public and private post-secondary institutions (207,180).

- Of the 3,775,910 adults with disabilities in Canada, 42% had some post-secondary education.

- Of those, 980,090 (62%) had some post-secondary non-university education and 605,100 (38%) report some post-secondary university education.
- Among the 980,080 Canadians with disabilities who report post-secondary non-university education, 21% are part of our research population; among the 605,100 who report post-secondary university education, 19.5% are part of our research population.
- University students with disabilities are younger, slightly more likely to be female, much less likely to identify as Indigenous, more likely to be an immigrant and slightly less likely to be a member of the visible minority population than non-university students with disabilities.
- University students with disabilities are less likely to report more than one type of disability, less likely to be classified as having severe or very severe disability, and slightly more likely to have had their disability since before the age of 19 than non-university students with disabilities.
- For both research populations (non-university and university), the most prevalent type of disability is pain. This type of disability is frequently reported together with mobility and/or flexibility disabilities and/or disability as a result of a mental health condition. Among university students with disabilities, mental health was the second most prevalent disability reported; among non-university students, flexibility disability was the second most prevalent.
- Almost one in three (30.4% or 99,010 out of 325,180) of post-secondary students with disabilities report only one type of disability. Among university students with disabilities, 37.3% or 43,955 out of 118,000 reports only one type of disability while among the 207,180 non-university students with disabilities, this drops to 26.6% or 55,055 students.
- Overall, almost six out of 10 post-secondary students were employed at the time of the survey and there was little difference between those attending non-university post-secondary institutions and those attending university. However, the data show that there were significant differences when the post-secondary student population was divided into those currently attending and those who had recently attended. Just over seven out of 10 post-secondary students who had

attended university during 2007 and 2011 were employed and only 2.6% were unemployed. Contrast this to non-university post-secondary students where 67.5% are employed but 7.3% were unemployed.

- When age is factored in, the percentages who were employed at the time of the survey shows major differences. Among university students who were attending school during 2007 and 2011 and are no longer attending, 79.1% who are aged 15 to 24 years and 81.4% who are aged 25 to 34 years were employed. Contrast this to non-university post-secondary students where only 73% aged 15 to 34 and 73.7% aged 25 to 34 years were employed.
- There were 18.7% post-secondary students with disabilities who lived in households where the household income was below the low-income cut-off. Within that group, post-secondary non-university students who were currently attending were the worse off. Almost one in four (23.9%) were living in households below the low-income cut-off. By contrast, non-university students who had attended during 2007 to 2011 were the best off with the percentage dropping to 14.8.
- Few post-secondary students need adapted or modified building features to attend their chosen post-secondary institution. Of the 325,180 post-secondary students, only 7.7% needed this accommodation and this proportion was even less among university students with disabilities.
- Just over one in four (84,830 or 26.1%) needed assistive devices, support services, modification to curriculum or additional time for testing to follow courses. This need was higher among university students with disabilities. With this group, 37,970 or 32.2% needed at least one of these accommodations.
- Among those who need such accommodations, the highest need was for extended time to take tests and exams – 76.3% or 64,730 students with disabilities. This need was similar across the two types of institutions. However, the unmet need for this type of accommodation was significantly higher among non-university students with disabilities. Among university-based students with disabilities, unmet need was 8.3% while among non-university students with disabilities, this unmet need was 21.2% - over one in five who needed this accommodation did not receive it.

Students with Disabilities in Graduate Education: The 2016 Canadian Graduate and Professional Student Survey Data

Key Message: Graduate students with disabilities experience their educational journeys in subtly and overtly distinct ways from their non-disabled peers.

Key Message: Overall, graduate students with disabilities experience lower levels of satisfaction, both academically and socially, and identify as having greater difficulty navigating the academic, professional development and campus social environments at their institutions.

Students who graduate from Master's and PhD programs make substantive contributions to their communities on a regional, provincial and federal level through their employment and other contributions, such as their volunteer work. As the number of students with disabilities entering graduate education in Canada continues to increase, disability service providers, financial aid administrators, student life professionals, students themselves, graduate departments, deans and student services directors, and universities as a whole are having to develop new strategies to facilitate their success. This effort is also driven in part by the need to be responsive to evolving provincial legislative landscapes in Canada. In this environment, a number of myths and misperceptions have arisen, which can lead policy and practice in potentially inappropriate directions. Therefore, there is a significant requirement to have a detailed understanding, both quantitative and qualitative, of the experiences of students with disabilities in graduate studies.

To address this knowledge gap, the National Taskforce on the Experience of Graduate Students with Disabilities published a landmark report, *Understanding Accessibility in Graduate Education for Students with Disabilities in Canada* (2016). This report, released by the National Educational Association of Disabled Students (NEADS), was the culmination of a four-year research project undertaken by the Taskforce. The Taskforce, after consideration of the issues, chose to undertake a multi-pronged approach, including a comprehensive online national survey of graduate students with disabilities; institutional surveys; focus groups of professionals involved in addressing the issues faced by graduate students with disabilities; key informant interviews with subject matter experts; data

mining of extant relevant surveys; and a detailed national and international literature review.

The outcomes of the project focused on the major myths and perceptions surrounding the academic experience of graduate students with disabilities, identified through our research efforts. These include:

- Issues surrounding expected vs. actual times to program completion;
- The disconnect between student training in academic integrity issues and institutional perceptions around the impact of accommodations on academic integrity;
- The ability to achieve the “necessary competencies” of graduate programs and disciplines;
- The nature and cost of academic accommodations and undue hardship;
- The differences between the accommodation requirements of undergraduate and graduate programs of study; and
- The importance of faculty education in understanding the complexities of the interface between disability issues and graduate education.

Major themes included a renewed appreciation for the complexity of the barriers faced by trainees (graduate students and post-doctoral scholars) with disabilities within the research enterprise; the critical need for appropriate resources and frameworks that can be implemented at an institutional level to enhance the participation and success of trainees with disabilities; and the national and international context of disability issues within the research enterprise, as well as the importance of ongoing data gathering and advocacy approaches in driving the inclusion, participation and success of post-doctoral scholars and other trainees in the research enterprise.

Finally, of note was the observation that, while students with disabilities face complex challenges to their success within graduate education, many issues are at their root matters of the philosophy of graduate education, as informed by the disability context. The project's findings translate into key messages and resources that institutions and research trainees with

disabilities may apply to enhance the inclusion, participation and success of this population within the research enterprise.

The findings from this unique, first-in-class, multi-stakeholder research effort into the issues and barriers faced by graduate students with disabilities in Canada were used to evolve a series of policy, practice and professional development recommendations with three broad themes:

1. Increasing our knowledge of students with disabilities in graduate education;
2. Leveling the playing field and providing equal opportunities to graduate students with disabilities; and
3. Increasing the effectiveness of academic and co-curricular accommodations in the graduate environment.

Of the twenty-five (25) global recommendations contained within the report, a major component was the need for additional data, in comparison to the general population of graduate students, in order to understand the academic and social experiences of graduate students with disabilities relative to their peers.

The Canadian Graduate and Professional Student Survey (CGPSS) is organized by the Canadian Association of Graduate Studies (CAGS). Various institutions across Canada disseminated the CGPSS in 2007, 2010, 2013, and 2016. The purpose of the survey is to obtain information about graduate student satisfaction and the student experience. In Canada, it is the largest and most comprehensive source of data concerning these topics. More information about the CGPSS can be found on the website for CAGS (http://www.cags.ca/cgpss_home.php)

Institutional participation in the survey increased from 38 universities in 2010 to 50 in 2016. As participation in data collection has grown, the survey instrument has also undergone several changes. Most relevant to the current analyses is that for the first time since its inception, the 2016 CGPSS survey included questions concerning disability. These inclusions mean that these data are now the biggest source of data about Canadian graduate students with disabilities. Analyses of these data allow for a more comprehensive understanding of this specific population of students.

One of the components of our Landscape Project was secondary analyses of an existing CGPSS dataset. The objective was to analyse this dataset and use these findings to supplement the primary data collection that was being done as part of the project. After being granted approval to use the 2016 dataset, four lines of inquiry were undertaken, including:

- A comparison of graduate students with and without disabilities;
- A comparison of graduate students with disabilities in STEM and non-STEM fields;
- A comparison of graduate students with disabilities in full-time and part-time studies; and,
- A snapshot of graduate students with disabilities who identified as Aboriginal

In the rest of this section, a synthesis of the key findings in which comparisons are made between graduate students with and without disabilities, are provided for each section of the Canadian Graduate and Professional Student Survey survey. The analysis was conducted by Landscape of Accessibility Project team member Kathleen Clarke (Moore), Ph.D. Candidate, Higher Education, OISE/University of Toronto.

Personal Demographics

- In response to “Do you identify as having a disability,” 2,324 participants responded ‘Yes’. This 2,324 represents 5.14% of the total population of respondents (N = 45,251). 42,924 participants responded ‘No’ and 1,727 participants responded that they “Prefer not to Answer.”
- **Gender:** More respondents with disabilities identified as female (67%) in comparison to those without disabilities (58%)
- **Age:** Students with disabilities were typically older. While 45% of respondents with disabilities identified as being 31 years old or older, only 37% of respondents without disabilities identified in the same way.
- **Self-identification as Aboriginal (status or non-status Indian, Métis or Inuit).** Eight percent (n = 189) of students with disabilities self-identified as Aboriginal and 3% (n = 1,265) of students without disabilities identified in the same way.

Disability

- **Type of Disability:**
 - Most common was 'mental health': 43% (n = 991)
 - Second most common was 'learning disability': 30% (n = 693)
 - Least common was 'Autism spectrum': 3.44% (n = 80)
- **Institutional Efforts to Accommodate:** Respondents rated institutional efforts favorably. While 64% rated institutional efforts as Excellent, Very Good, or Good, 36% rated as Fair or Poor.

Educational Status

- **Type of Program:** Most students in both samples were in a research-based program and already had a research director/advisor (62% of students without and 63% of students with disabilities).
- **Degree Level:** Similar rates of respondent from both groups were in Master's (65% without and 68% with disabilities) versus doctoral programs (35% without and 32% with disabilities), according to data provided by participating universities.
- **Discipline:**
 - Most frequently reported disciplines for students with disabilities were 'Social Sciences' (20%), 'Humanities' (14%), 'Health science' (12%), and 'Education' (11%).
 - Most frequently reported disciplines for students without disabilities were 'Engineering' (15%), 'Health Science' (14%), 'Social Sciences' (11%), and 'Education' 10%).
- **Reason for Enrolling:** For both groups of students, the most common reason for enrolling in the current program was: 'to equip me to start a career or advance an existing career outside of academia'; 41% of students without disabilities and 36% of students with disabilities recorded this response. The second most common response for both groups was: 'to equip me to start a career or advance an existing career in academia'; 32% of respondents in both groups recorded this response option.

- **Academic Load:** Most students in both groups were enrolled full-time, with 82% of students without and 85% of students with disabilities indicating this.

General Satisfaction

- **Overall Pattern:** Students without disabilities appear to be more likely to select the same university and field of study if they were to start their graduate careers over, in comparison to students with disabilities.
 - **Select same university:** 71% of students without disabilities and 63% of students with disabilities said they would either 'Definitely' or 'Probably' select the same university.
- Students without disabilities appear to be more likely to recommend their program and university to others.
 - **Recommend program to others:** 75% of students without disabilities and 66% of students with disabilities said they would 'Definitely' or 'Probably' recommend their university to someone considering their program.
 - **Recommend university to others:** 63% of students without disabilities and 54% of student with disabilities said they would 'Definitely' or 'Probably' recommend their university to someone in another field.

Satisfaction with Program, Quality of Interactions, and Coursework

- **Overall Pattern:** Students without disabilities consistently rated all examined items more favourably (based on responses of 'Excellent', 'Very Good', 'Good') in comparison to students without disabilities. However, some items were rated more favourably than others.
- **Rated Most Favourably:** The two items that were rated the most favourably (based on responses of 'Excellent', 'Very Good', and 'Good') were 1) Intellectual quality of the faculty; and 2) Intellectual quality of fellow students.
- **Rated Least Favourably:** The two items that were rated the least favourably (based on responses of 'Fair' and 'Poor') were 1) Advice on

the availability of financial support; and 2) Opportunities to take coursework outside own department.

Professional Skills Development

- **Overall Pattern:** Students without disabilities consistently rated all examined items more favourably (based on responses of 'Excellent', 'Very Good', 'Good') in comparison to students with disabilities. However, some items were rated more favourably than others.
- **Rated Most Favourably:** For both groups, respondents rated the quality of support and training they received for 'Feedback on research' most favourably. 71% of students without and 65% of students with disabilities reported the feedback they received on their research was 'Excellent', 'Very Good', or 'Good.'
- The greatest difference between the two groups was 12%, for 'Advice/workshops about research ethics in the use of animals.' For this item, 53% of students with disabilities responded that it was not applicable, while only 41% of students without disabilities responded in the same way.

Research Experience

- **Overall Pattern:** Students without disabilities consistently rated all items more favourably (based on responses of 'Excellent', 'Very Good', and 'Good') in comparison to students without disabilities.
- **Rated Most Favourably:** Items rated most favourably by both samples were: 1) Conducting independent research since starting your graduate program; and 2) Faculty guidance in formulating a research topic.

Presentations and Publications

- When identifying whether items occurred in their department, similar percentages of respondents indicated 'departmental funding for students to attend national/regional meetings' and 'attend national scholarly meetings.' For students with and without disabilities, approximately 50% of respondents from both groups responses that these two items occurred.

- When identifying whether 'Seminars/colloquia at which students present their research,' a difference of 10% between the two groups was found. While 75% of students with disabilities indicated these events occurred only 65% of students without disabilities responded in the same way.

Advisor and Thesis/Dissertation/Research Project

- **Level of Agreement with Advisor Behaviours:** The overall pattern is that in general, more students without disabilities typically responded with 'Strongly Agree' or 'Agree' in comparison to students with disabilities.
 - **Differences between two groups on 'Strongly Agree'/'Agree':** Differences ranged from 3% (advisor gave constructive feedback on work; advisor returned work promptly; advisor was available for regular meetings) to 8% (advisor promoted my professional development; advisor encouraged discussions about job markets and career prospects)
- **Most-to-least agreed upon statements for students with disabilities:**
 - 75% or more respondents indicated that 'agreed'/'strongly agreed' for all items except 'my advisor encouraged discussions about current job market and career prospects,' where only 62% responded in the same way.
 - The top two most agreed upon statements were 'my advisor gave me constructive feedback on my work' (90% said 'agree' or 'strongly agree') and 'my advisor served as my advocate when necessary' (88% said 'agree' or 'strongly agree')
- **Meeting and Communicating with Advisor:** Overall, students without disabilities meet with their advisor more often to discuss ongoing research/results and writing of dissertation.
- **Existence of Committee:** Similar rates of students from both groups indicated they had an advisory committee, with 32% of students without and 34% of students with disabilities responding this way.

Financial Support

- **Top 10 sources for students with disabilities:** When examining the top sources of financial support for students with disabilities and comparing the percentage of respondents from each group that reported using that source of support, it is clear that students with disabilities are more reliant on these sources than those without disabilities (some sources to a greater than others, however).
- **Differences between students with and without disabilities:**
 - For 14 out of 18 items there was a difference of only 3% between the two groups.
 - The greatest differences between the two groups were for 'loans, savings, or family assistance' (16% difference), 'university-funded bursaries' (9% difference), and provincial bursaries (6% difference).
 - Loans, savings, or family assistance: While 55% of students with disabilities reported using this source of financial support, only 39% of students without disabilities reported using this.
- **Amount of Education Debt:**
 - Overall, graduate students with disabilities have a greater amount of debt at both the undergraduate and graduate levels.
 - **Undergraduate:** 66% of students without disabilities and only 54% of students with disabilities reported they had no undergraduate student debt.
 - **Graduate:** 49% of students without disabilities and only 36% of students with disabilities reported they had no graduate student debt.

University Resources and Student Life

- **Rating Quality of Services:**
 - **Overall Pattern:** When asked to rate the quality of various resources, the overall pattern shows students without disabilities typically rate services in a more positive light (based on

responses of Excellent/Very Good/Good), with some exceptions such as with health care services and student counselling.

- **Differences between students with and without disabilities:** Three of the examined services had a difference of over 10% between the two groups for responses of Excellent/Very Good/Good. These items included: Graduate student work/study space (56% without and 46% with disabilities); research laboratories (42% without and 29% with disabilities); and athletic facilities (53% without and 42% with disabilities).
- **Disability/Access services:** 40% of students with disabilities rated this service favourably, while 16% rated it as 'Fair' or 'Poor'. Interestingly, 25% of students with disabilities said they did not use this service, and 18% said it was not applicable to them.
- **Location of Offices:** It appears that more students with disabilities use the Central Office of Student Services for most of the examined services, in comparison to students without disabilities (with the exception of graduate student work/study space). Conversely, the percentages of students without disabilities indicating they used the Central Office for services was typically higher in comparison to students with disabilities (with the exception of graduate student work/study space).

Social Life

- **Organized social activities within your advisor/research group:** For the 'Never' response option, 45% of students with disabilities and 37% of those without said these activities did not occur; a difference of 8%.
- **Organized social activities within your residence:** For the 'Never' response option, 74% of students with disabilities and 65% of those without said these activities did not occur; a difference of 9%.
- **Organized university-wide social activities:** The greatest difference for this item is on the 'Frequently' response option, where 61% of students with disabilities and 52% of those without said they attended these activities frequently.

- **Organized social activities within our residence:** For the 'Frequently' response option, more students with disabilities (54%) indicated they attended frequently in comparison to the 44% of students without disabilities. More students without disabilities (40%) indicated they attended occasionally, in comparison to students with disabilities.

General Assessment

- **Highest Rating:** For both groups of respondents, the item that was rated most favourably was 'your academic experience at this university'. 90% of students without and 83% of students with disabilities rated this item as Excellent/Very Good/Good.
- **Lowest Rating:** 'Your student life experience at this university' was rated the least favourably by both groups. For students without disabilities, 79% responded with Excellent/Very Good/Good while 21% responded with Fair/Poor. For students with disabilities, 68% responded with Excellent/Very Good/Good and 32% responded with Fair/Poor.
- **Biggest Obstacle:** The obstacle that was considered a 'major obstacle' by the highest number of respondents for both groups was 'work/financial commitments'. While 32% of students without disabilities responded that it was a major obstacle, this was much higher for students with disabilities, at 43% (a difference of 11%).
- **Most important:** 'Networking with local/provincial/federal government' appeared to be the most important item for both groups, with 43% of students without and 44% of students with disabilities indicating this was 'very important.'
- **Least important:** 'Study abroad' was the least important item for both groups, with 35% of students without and 41% of students with disabilities responding that this was 'Not important.'

Undergraduate, Professional and College Student Datasets

Key Message: Significant disparities exist between the university and college sectors with respect to the nature and type of student engagement datasets in Canada.

Key Message: A nationwide college student engagement survey, utilized by a majority of publicly-funded college campuses, does not exist, and presents a significant barrier to a comparative understanding of the college experience of students with disabilities. Province-by-province disparities in the collection of college student engagement data also exist.

As part of the Landscape project, we undertook a comprehensive search for available student engagement datasets within the post-secondary sector, which were inclusive of disability demographic questions. Such comparative datasets are very powerful as they provide a ready-made way of aligning the experiences of students with disabilities against their non-disabled peers across multiple facets of life in post-secondary.

At the undergraduate level, two large nationwide studies are conducted at participating institutions: The National Survey on Student Engagement (NSSE), administered by the University of Indiana; and the Canadian University Survey Consortium (CUSC) surveys. NSSE is administered to 1st year and 4th year students in first-entry undergraduate programs, while CUSC is administered to 1st year, mid-year and graduating students in a consecutive cycle. While NSSE data are available on an institution-by-institution basis, the CUSC dataset is available in national aggregate. We therefore requested the 2014, 2015 and 2016 CUSC datasets for analysis, and are undertaking a comparative review of the experience of students with disabilities at the undergraduate level. In the future, we will work to partner with the CUSC consortium on an ongoing longitudinal study based on a multi-year analysis of their data.

By contrast, our review of the college student experience landscape revealed that a national data source is sorely lacking. Only two Canadian colleges participated in the most recent iteration of the Community College Survey on Student Engagement (CCSSE) from the United States, and there is no college sector counterpart to the CUSC. We therefore have no national college student engagement data to draw on.

We further undertook a review of provincial college student datasets and identified Ontario as a leader in data collection. The Ontario College Student Satisfaction Survey (OCSSS) is an end-of-term paper-based survey (2 pages) deployed to 160,000 college students in Ontario annually by the Ministry of Advanced Education and Skills Development. Although the survey is deployed in an inaccessible manner for students requiring accessible format materials, it does pose a basic (binary) disability demographic question, and as a first pass, allows for some limited analysis of student success, student satisfaction and student engagement within the college sector.

We are currently analysing the 2016 OCSSS dataset, and if successful, will extend this analysis to the 2012-2017 academic years, in order to begin to

develop a longitudinal picture of the student experience for college students with disabilities in Ontario. We have also begun preliminary conversations with stakeholders within the college sector about a nationwide student engagement survey, inclusive of the disability demographic, in order to close this data collection gap.

While consortium-based general population surveys are helpful in measuring the student experience for all students, inclusive of students with disabilities, understanding factors specifically relevant to the disabled student experience (e.g., accessible format materials, use of mainstream and assistive technologies, etc.) is still important. This necessitates the regular collection of population-specific data relevant to students with disabilities – to that end, we have also designed an updated national students with disabilities student experience survey, which we are deploying in the summer/fall of 2018.

Environmental Scan of Institutional Policies

Key Message: Institutional policies around accessibility and accommodation are variably and inconsistently implemented nationwide. Geography, institution type and governance structure are reflected in the currency and extent of institutional buy-in for accommodation policies.

Thirty percent (30%) of Canadian post-secondary institutions had no formal policy on academic accommodation. Through the course of this study we identified definite trends in the landscape of accessibility in Canada. In short, we identified significant policy “deserts” in the landscape of post-secondary education. Atlantic Canada and the Prairies contained institutions with the greatest policy gaps. Colleges and hybrid institutions tended to have more significant policy gaps than universities. Primarily undergraduate universities had larger policy gaps than medical/doctoral universities or comprehensive universities.

Policy quality is uneven.

The quality of accommodation policies across institutions is uneven. This study revealed an extremely wide variety of decision-making venues, and a significant number of policies are unclear as to who has institutional authority for decision-making regarding approving academic accommodations; a clear decision-maker was found in only 56% of the institutions reviewed. Only 35% of institutions had a clear dispute mechanism or appeal process for academic accommodation. Few institutions

articulate a clear path for policy evaluation and maintenance or identify a clear policy monitor. Even fewer institutions attended to policy education at all, with only a small number establishing a framework to promote awareness and acceptance of disability related issues and persons. While most institutions had some sort of Disability/Accessibility centre that would serve as the coordinator for academic accommodations, some institutions left arranging accommodations to the student. 58% of the policies assessed included procedural guidance for stages and roles in accommodation, and technical guidance to students is uneven.

Policies are needing renewal.

Overall, it was unclear how recently adopted many institutions' policies were, since 36% of those in the sample did not record an initial policy adoption date. For those institutions which had recorded dates of initial adoption (62% of the sample), institutional academic accommodation policies are relatively current. Of those institutions with a clear date of renewal, the mean length of time since an update was 5 years, and there has been noticeable increase in policy renewal in the past several years. The causes of policy renewal in these cases were not evaluated. Those colleges with policies tended to be more current than universities, with medical/doctoral universities being the least current and primarily undergraduate universities being the most current. Regions and provinces show differences as well.

Policy legitimation is questionable.

Policy legitimation is the process by which institutions ensure that chosen policies have support, and is often reflected in the approval process. Governance and administrative arrangements vary widely, revealing a diversity in policy framing and implementation. Policy approval mechanisms were variable, with the top three approval methods being institutional Boards of Governors (25%), the academic governing body (22%), followed by an administrative body (17%).

Accommodation policies are indexed as student policies in just over half of the policies evaluated, with a small minority indexed as academic policies. There are no clear patterns in policy sponsorship, with institutions adopting a wide variety of administrative arrangements and potentially reflecting a diversity in approaches to ensure that policy decisions are implemented effectively and with fidelity to the espoused policy commitments.

Legal responsiveness is uneven.

Generally, institutional policies espoused responsiveness to institutional legal obligations. Not all institutions tie their academic accommodation policies to specific policy, legislative, or quasi-constitutional texts; the Canadian *Charter of Rights and Freedoms* or provincial human rights codes are most commonly referenced, with provincial privacy legislation and provincial health information legislation less so, and no policies referenced UNESCO or United Nations conventions. Technical requirements for students requesting academic accommodation varied greatly, though common requirements included formal documentation of a disability, a diagnosis, or a diagnosis and documentation of the effects of a disability. Limits to accommodation were almost always described using “reasonable accommodation” or “undue hardship”. Reasonable accommodation is usually defined by the decision-maker in the institution. Undue hardship typically is framed through financial considerations of the institution.

The effects of engagement and support of stakeholders is unknown.

The effect of membership organizations on academic accommodation policy is unclear. Student organization affiliation is associated with observed differences in policy formation and in policy currency. The Canadian Association of Graduate Students membership is associated with slightly less currency in policy.

Section C: Disability Legitimization and the Post-Secondary Education Environment

Attitudinal Barriers and the Accommodation Model

Key Message: Attitudinal barriers, such as the 'gatekeeper function', are based on implicit biases and a lack of training and experience, and often negatively impact the experience of students with disabilities.

Key Message: The current accommodation model, based primarily on a disclosure of needs framework, forces students to 'legitimize' their accessibility requirements, and adds stresses and cognitive load to the educational journeys of the students.

Key Message: Self-advocacy, intended to be a tool that benefits the student, can perpetuate the very issues of discrimination, labelling and legitimization that it is designed to resolve.

Key Message: The accommodation model and self-advocacy framework need to be re-imagined according to the principles of inclusion and universal design.

Attitudinal barriers and the 'gatekeeper function'

Attitudinal barriers cause tangible, and potentially harmful constraints on students with disabilities in the Canadian post-secondary educational environment (Bailey & du Plessis, 1997; Fichten 2003; Ontario Human Rights Commission, 2002). To be specific, attitudinal barriers cause disruptions during the acquisition of accommodation for students with disabilities. These experiences in the post-secondary environment can also affect health outcomes, employment outcomes, and longevity for students with disabilities (Benoit & Shumka, 2009; Harrison, 2015; Fichten, 2003; Hankivsky & Chrisoffersen, 2008; Ostrowski, 2016; Reed & Curtis, 2012).

Attitudinal barriers can often be very insidious and be framed in terms of academic integrity and academic rigour. Educators and service providers can, for example, act as 'gatekeepers' to education, particularly for students in 'non-traditional' programs of study (e.g., STEM; healthcare; business), by arguing that the student's lived experience with a disability precludes their effective participation in their chosen discipline. These arguments often hide

an underlying lack of knowledge on how to effectively teach a student in those disciplines in an accessible way, and can be difficult to counter without willingness to think creatively about accessibility solutions on the part of the educator, the service provider, the school and the student.

Anecdotal evidence suggests that the 'gatekeeper function' is more pervasively experienced by students who enter a program having a lived experience with a disability, than it is for those students who may acquire a disability during the program, or as a young professional. This observation may be related to the notion of having 'paid one's dues' in the profession – having earned the opportunity to be active in their field, as opposed to students entering a discipline with an experienced disability, who have not yet done so.

Other attitudinal barriers can be experienced by students with disabilities as well. These are often implicit biases or based on societal perceptions about disability, ability and stigma, and can be experienced by the student from their peers, from faculty, and even from service providers and staff from the college or university. All attitudinal barriers are particularly challenging to the student if experienced as part of the accommodation process.

There are certain skills and expectations that are assumed to be acquired for all individuals within a North American society, such as computer literacy, that support a narrative and ongoing paradigm of a global society that values resource allocation, peoples' dictation and possible outcomes in places like postsecondary (Shankar 3923; Fichten). These assumptions do not factor in a person's potential fluctuating circumstances with, lack of, or barrier to social capital, cultural capital or desire to remain engaged with a set of cultural values and norms that are not associated with this Euro-centric ethos.

Furthermore, remaining engaged in a post-secondary setting, and to achieve goals that will further empower a student's life, requires students from various backgrounds to constantly attempt to secure their equal opportunity to remain in post-secondary. For a student with a disability, it is important to recognize that the topic of *subtle stigma* influences how students are engaged with their environments. Moreover, it is a truly taxing endeavour that causes a student to devote their time, energy and resources to the constant articulation of their needs that could otherwise be devoted to study, social integration and academic learning in some format.

The accommodation model in post-secondary education

Authors offer critical analysis of the 'accommodation model' as a complex form of gaining accessibility in the post-secondary education environment, and point to the embedded attitudinal barriers within negotiation processes (Baur, Parker, & Dufflet, 2014; Canadian Working Group on HIV and Rehabilitation, 2012; Condra, 2015; Lightman et al., 2009; Rodeiro, 2010). Authors such as Jung (2002) and Burgstahler (2011) highlight the potential challenges of disability disclosure in the current accommodation model, which is considered to be a 'Medical Model' of disability. Indeed, documentation of disability in this context is drawn very heavily from the healthcare space, and students can be triaged in much the same manner as in healthcare. The Medical Model is a prerequisite to obtaining potential accommodations where a multi-party stakeholder solution becomes involved in creating said accommodations for access (Opportunity to Succeed Report; Barnett, 2012). Within this system, students are either granted *approval* or *denial* for their accommodation requests within an environment which has not been proactively built to include them (Burgstahler, 2011; Higbee, 2010).

The issue of *approval* is that this mechanism within the accommodation model is largely arbitrary, given that it is primarily based on the discretion of an individual, a 'document-reviewer' or 'document-provider', who is in the position to accept or deny the accommodation request (Burgstahler, 2011). Discrepancies or misinterpretations of this accessibility provider, or *gatekeeper*, may prevent a student's documentation of their disability and accommodation request from being approved (Baur, Parker & Dufflet, 2014; Burgstahler, 2011; Canadian Working Group on HIV and Rehabilitation, 2012; Cohen et al., 2008; Lightman et al., 2009). Fichten (2001) highlights the issue of disparate jurisdictional accessibility, and how linguistic interpretations of disability influence access to assistive technology (Fichten, 2001). Ostrowski (2016) emphasizes the role of high quality and timely access in accommodations, and how these qualities, if absent, will affect the outcomes of student success in the form of academic and social integration (Ostrowski, 2016).

Therefore, in environments governed by 'accommodation models', a student, whether they overtly or covertly identify as having a disability, becomes in some way burdened with the following three major cognitive stressors:

- (1) *Disclosure of Disability*
- (2) *Development of Accommodation Solutions*
- (3) *Provision of Accommodations to Access an Inaccessible Environment*

Objectively speaking, students with disabilities have been reported to face discrimination in their accommodation-seeking during post-secondary *and* employment contexts (Benoit, Easterbrook et al. 2014; England, Jung, 2010; Harrison, Holmes, 2005). The types of discrimination that an individual with a disability will face while acquiring accommodation have similarities to the potential inner-stigma that is felt by individuals with disabilities, and the potential stigma that is projected by employers [3]. Facing discrimination and stigma in accommodation-seeking becomes an added exertion *on top of* students expected academic and social obligations in the post-secondary environment (Easterbrook et al., 2014; Eckes & Ochoa, 2005; Reed et al., 2006; Reed & Curtis, 2012). Authors such as Jung (2000), for example, highlight the complex nature of the accommodation model where chronically ill women might develop a crucial dependence upon accommodations as a form of access despite the real risks attached to becoming defined as disabled.

Self-advocacy and disclosure

In combating stigma and discrimination in the disclosure and accommodation-seeking process, there has been a mainstream understanding that the most important skill for a student with disability to possess or develop in today's post-secondary environment is that of self-advocacy (Herridge, 2017; Stodden, Whelley, Chang, & Harding, (2001). The skill acquisition of self-advocacy is important for students with disabilities, as they must disclose any accommodation needs to administration and instructors, and later to employers.

Scholars recommend that prior to post-secondary, secondary school educators should work with students with learning disabilities to develop self-advocacy skills (Herridge, 2017). Yet research suggests that there are gaps in self-advocacy training for students with all types of disabilities in secondary and post-secondary education. In one study by Stodden, Whelley, Chang, & Harding, (2001) who conducted a national survey in the United States of educational support provision to students with disabilities in post-secondary education, it was found that only 48% of institutions offered self-advocacy skills to students with disabilities more than 75% of the time.

Reframing the accommodation model and self-advocacy together

While self-advocacy remains critical to the accommodation model for students with disabilities to gain access, it ultimately perpetuates the very issues grounded in the medical model of disability: disability labelling and the legitimization process. This suggests that new models, built more solidly on principles of inclusion and universal design, are necessary to minimize labelling and legitimization. To do this, we must collectively return to the bedrock assumptions and principles on which the current accommodation models are based and re-evaluate them in light of what we know today.

We must also consider how those models account for issues such as diversity of the learning environments in post-secondary education; essential requirements of courses, programs and disciplines; new technologies; and the dynamic nature of functional impact of a person's disability interacting with the environment that person is in. Finally, we must consider the influence of our language around accessibility in the learning environment. For example, often when faculty ask, "why is an accommodation necessary?" it is their way of asking "what is the functional impact, so that I can determine how that relates to what I am trying to teach?" For students to be active participants in the process of accessibility in their education, then, the nature of self-advocacy also needs to be reframed. Self-advocacy needs to become the process of 'self-knowing', as well as the process of interpreting and navigating the learning environment in a flexible and creative way. This re-imagining of self-advocacy needs to take place jointly with the re-imagining of the accommodation model, in order to build a more accessible post-secondary education system.

Documentation: A lived experience of Students with Disabilities

Key Message: Differing operational definitions of disability and/or levels of functional impact between institutions may negatively impact students' likelihood of receiving needed accessibility solutions for their educational journeys.

There is no universally accepted definition or framework that exists in Canada regarding the definition of disability and how this label should be applied to an individual's identity or life circumstance (Harrison, 2015; World Health Organization, 2011; McColl, M. A., Bond, R., Shannon, D. W., & Shortt, C., 2016). Nation-wide case studies in the post-secondary and employment spaces reveal that even when a student who identifies with a disability accesses higher education, or when an employee identifies as disabled, this socially labelled group might not experience the same positive impacts of having engaged in higher education compared to a non-disabled peer (Reed & Curtis; England, 2003: 434; Jung 2002).

Harrison & Wolford (2002) point out the pragmatic challenges that Accessibility Services/Disability Service Offices face in the current Canadian postsecondary education environment regarding documentation of students who identify with a disability. The challenges raised in this pan-Canadian survey of Disability Service Providers can continue to be enriched by the research and details provided in ongoing 'on the ground' consultations.

Seigel et al (2014) sheds light on the issues around students who face barriers with formal accessibility procedures and processes. Siegel et al's (2014) research highlights the 'cut off' effect that can happen to an identified group when processes and procedures across a country as large as Canada are subject to various measurement tools that are attributed as normalized truths. Siegel et al demonstrate that a student with a disability can be exposed to arbitrary standards attributed to documentation. Their study revealed that there is no consistency or consensus regarding a learning disability diagnosis, within theory or research. Siegel et al's (2014) research highlighted that across the Canadian post-secondary landscape, students with learning disabilities are subjected to dissimilar diagnostic criteria, and lack of consistency creates potentially unequal opportunity to acquire accommodations for students who identify with a learning disability.

For example, at some institutions, an operational definition of Learning Disability is used, meaning they expect a psycho-educational report and assessment protocol to meet the LD diagnostic criteria (this includes the Diagnostic and Statistical Manual of Mental Disorders or guidelines developed by their respective province). Siegel et al. (2014) found that at many institutions, learning disability diagnoses were based on some kind of discrepancy in scores, such as the discrepancy between IQ and achievement scores and/or a discrepancy between IQ and information processing scores.

To reiterate, the dissimilarity in documentation criteria can produce long-lasting damage to students not only at the first 'cut off' effect who might be disqualified at the initial admissions stage, needing academic accommodations, but throughout the student experience where integrating socially and academically into the respective post-secondary environments are critical for the eventual integration into the societal, and prospective workforce.

Legitimization & Cognitive Overload

Key Message: Cognitive overload as a result of the need for legitimizing one's accessibility requirements in post-secondary education can negatively impact a student's educational journey and mental health.

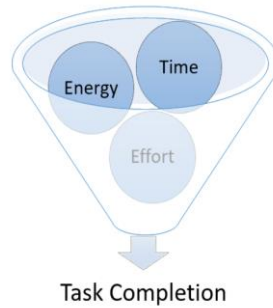


Figure 3A: Academic Environment and Environment that supports learner needs

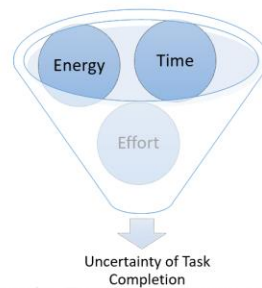


Figure 3B: Academic Environment and Environment that does not support learner needs

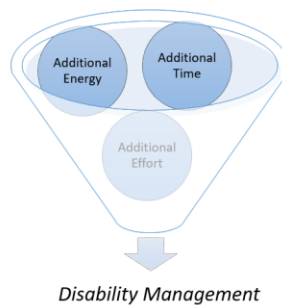


Figure 3C: Academic Environment and Cognitive Overload (Environment not meeting Learner needs)

Figures by Michaela Burton, Primary Author & Researcher

Legitimization is when a stigmatizing attribute of an individual, such as the label of disability, brings the performances of that individual into question, regardless of their actual ability to perform (Easterbrook et al., 2014; Goffman, 1959). A stigmatizing attribute such as 'disability' can 'overshadow' and 'contaminate' the entirety of a post-secondary student's experience, resulting in that person no longer maintaining status in a given situation (Barnartt, 2001; Goffman, 1963; Link & Phelan, 2001). Succinctly put, legitimization for students with disabilities within the post-secondary environment is the balancing act of 'asserting one's ability as good student now, and future practitioner or professional later (Easterbrook et al., 2015).

Legitimization is particularly salient for students with disabilities as they navigate the disability management process. Research has shown that navigating this process is a significant cognitive load for students with disabilities (Easterbrook et al., 2015; Benoit et al., 2013; Jung, 2002). Cognitive load can be defined as any mental energy exerted for a task where both working memory and complexity of elements held and manipulated are associated factors (Paas, Tuovinen, Tabbers, & Van Gerven, 2003; Paas & Van Merriënboer, 1994). Cognitive load has been reported as a major determinant in problem-solving situations, where the 'type of load' becomes a factor for the 'type of learner' (Brazier, 2012; Moreno, 2010).

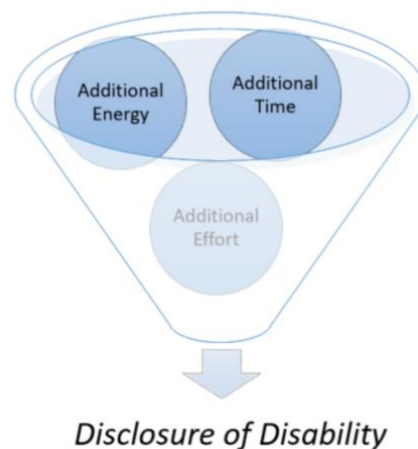


Figure 3D: Academic Environment and Cognitive Overload (Environment not meeting Learner needs)

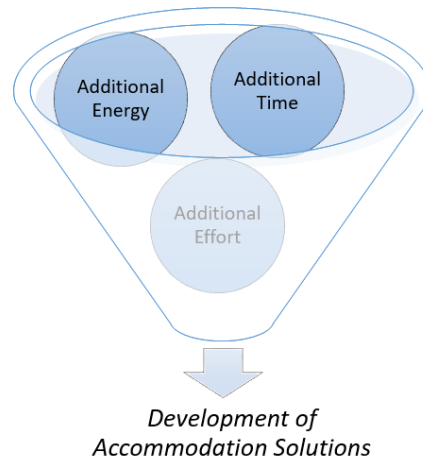


Figure 3E: Academic Environment and Cognitive Overload (Environment not meeting Learner needs)

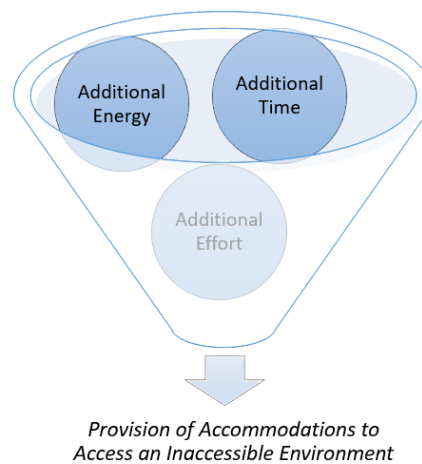


Figure 3F: Academic Environment and Cognitive Overload (Environment not meeting Learner needs)

Figures by Michaela Burton, Primary Author & Researcher

Scholars such as Easterbrook et al. (2015) have determined that the cognitive load of managing a disability can contribute to a cognitive overload effect for students with disabilities in the post-secondary environment. Cognitive overload can occur when the demands from a given task exceed a learner's working memory capacity and result in an unsuccessful learning experience (Stamovlasis & Tsaparlis, 2012). Simply put, "if processing demands reach a point that are too high where resources no longer are available for storage, then information can no longer be processed" (St Clair-

Thompson & Botton, 2009). Students with disabilities in post-secondary education are expected to gain access to a pre-determined established environment in distinct ways through the disclosure and accommodation process. The very act of disclosing a disability imposes undue cognitive, physiological, emotional, mental, and physical stress upon an individual who is already expected to perform academic and social obligations as part of their student engagement and success (NEADS, 2017). Easterbrook et al. (2015) specifically highlights the following strains contributing to the cognitive overload of students with disabilities:

Time
Energy
Effort

Overall, in navigating the disclosure and accommodation process on top of academic demands and social engagement, students with disabilities in university and college education are required to make greater investments of time, energy, and effort than their non-disabled peers (Easterbrook et al., 2015; Harrison, n.d.; Jung, 2002; Reed & Curtis, 2012)

The cognitive overload effect for students with disabilities has gone under-examined and under-acknowledged (Easterbrook et al., 2015; Benoit, Jansson, Jansenberger, & Phillips, 2013; Jung, 2002). Cognitive overload has been reviewed in the context of learning in STEM fields of study and best practices for students who identify with a learning disability (Ashghar, Sladeczek, Mercier, & Beaudoin, 2017); however, the examination of cognitive overload for students with disabilities in a Canadian nation-wide context, as it pertains to the current state of accessibility day-to-day procedures and accommodational model, remains unexplored. Future research examining cognitive overload of Canadian post-secondary students with disabilities is needed. The current research team has plans to explore the impact of cognitive overload on students with disabilities in Canadian post-secondary education through a nationwide student experience survey and student focus groups (see "Immediate Next Steps" section) as we have received grant funding from other sources beyond the scope of the initial Employment and Social Development Canada funded initiative.

Consequences of the Accommodation Model in Post-Secondary Education

Key Message: Students with disabilities may experience significant barriers in their post-secondary education and in becoming full participants in society, resulting from implicit biases in the perception of their social identities.

Key Message: Student success in navigating the accommodation model in post-secondary education does not translate to recent graduate success in the workforce.

Accommodation Model Limitations: Perceptions from Others

The policies and practices of a post-secondary educational institution can determine how a student is socially and academically integrated into their campus lives. The culture of processes can become turning points for health outcomes and quality of life measures (Benoit et al., 2013; Dallas et al., 2014; England, 2003; Shankar, 2013). The culture of policies and practices surrounding the accommodation model often presents challenges for students with disabilities because it is largely dependent on others' *perceptions* of them and their disability, including perceptions of faculty and student support and administrative staff (Jordan & Stanovich, 2010). In fact, perceptions of a student's disability have become critically important in ascertaining all types of access within the Canadian post-secondary educational environment: from access to certain health and safety needs within a campus living spaces, to equitably participating in the classroom and experiential learning settings.

As just one example, a review by Jordan and Stanovich (2010) purports that the success of students with disabilities in a formal learning environment is largely influenced by instructional interactions and teachers' beliefs regarding the nature of the students' abilities (as cited in Hindes & Mather, 2007). Another study conducted by Easterbrook et al. (2015) demonstrated practical examples of how students with disabilities from the Human Service Educational Programs in Canada have had to engage in various forms of *Impression Management* to persist in their learning environments as a compensatory method.

Overall, the accommodation model frequently results in students with disabilities having to legitimize their '*social identities*' and the ways they are

able to participate in the postsecondary environment (Easterbrook et al., 2015). More than ever, how an individual's intersecting axes of identities are *understood by others*, or their '*perceived social identity*', can determine access, i.e., approval or denial, for basic needs ensuring health and equitable participation in postsecondary education.

Using a Social Determinants of Health Framework for Assessing the Accommodation Model

Authors who focus on labour market outcomes, human capital theory, and access to education via pathway models have increasingly pointed to a person's 'identity', 'perceived social identity', and 'capital' (i.e., social, economic, cultural, and linguistic) as shaping their overall educational pathway. A person's perceived social identity as a form of power exerted by others (e.g., gatekeepers in the accommodation model process), as well as access to all forms of capital, have become critically important for understanding practical health outcomes such as quality of life, or social downward mobility associated with chronic illnesses (Benoit et al., 2013; The Earnings and Employment Outcomes of the 2005 Cohort of Canadian Post-Secondary Graduates with Disabilities; Hankivsky, 2012; Shankar 2013; Jung, 2002). 'Perceived social identities' and access to accommodations in order to participate in capital-building education and employment have, therefore, become 'health-determining' in today's globally stratified society.

Societal institutions, such as college and university education and employment, are social spaces that force humans to come into contact with each other's social identities and vie for critical resources. For the student with a disability, the need for an accommodation to participate can force them into direct conflict with an environment that is not entirely equipped to meet their most basic needs (CHRC, 2017; Easterbrook et al., 2015; Harrison, 2015; Jung, 2000; 2002; Reed, Kennett, & Emond, 2015). The effective management of accommodations in the post-secondary setting is (academic pursuits and student life), therefore, vital for ensuring both the short-term and long-term health of students with disabilities, and their longevity of unique contributions to Canadian society (Bauer, 2014; Benoit et al., 2013; England, 2003; Jung, 2002; Lange, 2015; Malandano, 2008; Shankar, 2013; The Earnings and Employment Outcomes of the 2005 Cohort of Canadian Post-Secondary Graduates with Disabilities).

Longevity Barriers: Post-Secondary Access affects Access to Employment

Authors such as Zarifa (2015) provide an outcome contextualization for barriers experienced by students with disabilities and shed light on how some of these major barriers *need to be reconsidered with a longevity perspective*. In other words, access is an ongoing process, and so, with better access *during post-secondary, during transition*, as well as *heightened* preventative measures, there could be less of a 'reinforcement effect' or 'carry over' effect of the stigmatization of the disability label (Devlin & Pothier, 2006; Gooding, 1995; Holloway, 2001; Oliver, 1996; Wallace & Fenwick, 2010). This reinforcement/carry-over effect of the stigmatization of the disability label can affect students throughout their various stages of post-secondary and beyond both internally, in terms of impacting their social well-being, self-confidence, and self-efficacy, and externally, in terms of inclusion in social, learning, and workplace spaces. Ultimately, barriers reflecting the stigmatization of the disability label can influence access to short-term and long-term employment opportunities for post-secondary students and graduates with disabilities.

Zarifa (2015) identifies labour force outcomes for the cohort of post-secondary graduates from the 2005 National Graduates Survey for students identifying with a disability. In this cohort, there are findings that **intersectional identity of disability and low socioeconomic status can lead to a mismatch of education, work outcomes, and de-skilling** (Andres et al. 1999; Krahn, 2009; Krahn & Bowlby, 1999). A most noteworthy finding in this study is that **individuals who identified with a disability were less likely to hold full-time employment, and were also more likely to be employed part-time, underemployed, or unemployed altogether** (Zarifa, 2015).

Moving towards Universal Access

Authors from Canada and internationally indicate that the 'accommodation' as an intervention to provide access for students with disabilities does not serve as a measure for equal opportunity in post-secondary education (Jung 2000; Ostrowski 2016; Reed & Curtis, 2012; Roberts, Park, Brown, & Cook, 2005). Frier, Barnett, Devine, & Barker (2016) point out that the current accommodation model in the post-secondary context is multi-party formula (OHRC, n.d.) that renders relevant parties to involve themselves in a *creative* and *sincere* process to determine what is *reasonable* (Barnett, Nicol, & Walker, 2012).

Scholars are also critical of how the Canadian Charter of Rights and Freedoms currently protects Canadians against disability discrimination. McColl, Bond, Shannon, & Shortt (2016) conducted an empirical review of the usage of Section 15 of the Canadian Charter of Rights and Freedoms (1982; part of the Constitution Act of Canada), including how the Supreme Court of Canada utilizes the Charter as a tool in disability-related discrimination cases, how disability is defined in the context of Canadian jurisprudence, and which types of disability-related cases have been chosen to be heard under the Charter. Based on this review, McColl et al. (2016) postulate that the Charter has not provided a sufficient measure of discrimination protection, and has yet to contribute to an overall day-to-day improvement of the lives of people who live with disabilities.

In an international literature review examining the “impacts of disability rights legislation on accessibility for persons with disabilities to a range of services”, scholar Professor Michael J. Prince of the University of Victoria (2010) discusses the necessity of Canadian institutions moving away from notions of anti-discrimination inherent in accommodation models and toward models emphasizing *proactive design of accessibility, reductions of inequality, and universal design*. Prince’s review of liberal-market democracies that have already engaged with federal disability acts demonstrate the need for *input from disability groups* that can provide the following:

- Meaningful lived-experience based strategies
- Holistic conceptual needs-based frameworks that will lend insight to how interdepartmental factions of government, services, supports and administration can operate more efficiently and possibly with less “red-tape;” and
- Adequate funding which is influenced by people who have been in the state of oppression and marginalization

For further information regarding the shift from an accommodation model to a “Universal Access” or “Universal Design” approach in Canadian post-secondary education, specifically, please see the later section of this report titled, *“Breaking the Silo’ed Approach to Accessibility Accommodations: Toward Universal Design in the Post-Secondary Learning Environment.”*

Section D: The Educational Journey of Students with Disabilities in Post-Secondary Education

The Evolution of the Student Experience, 1990s–2010s

Key Message: The student experience in post-secondary education has evolved over the past 20 years to include not just the academic learning environment, but also the co-curricular and extra-curricular spaces within college and university education, as well as work-integrated learning, academic employment and the campus social environment. Accessibility for students with disabilities attending colleges and universities needs to integrate all aspects of the student experience, not just the classroom learning context.

The National Educational Association of Disabled Students' (NEADS) previous report examining accessibility in Canadian post-secondary education, *Toward A Coordinated National Approach to Services* (1999), focused on the provision of accessibility accommodations within the context of the classroom learning environment. Shortly after the publication of this report, colleges and universities began to overtly recognize the importance of building communities for undergraduate and college learners. The student learning community, inclusive of integrated co-curricular, professional development, student life and work integrated learning opportunities, long a fact of life of professional programs (e.g., medicine, law), began to take shape within undergraduate and college student spaces. Meanwhile, the diversity of learning environments in graduate education – inclusive of departmental symposia, seminars, collaboration, conferences, presentations, publications and other forms of academic socialization – also began to be recognized as part of the totality of the student experience.

This evolution over the past two decades has taken the shape of formalized student life and professional development programming at college, undergraduate and graduate levels; the creation of co-curricular records (or co-curricular transcripts) at many post-secondary schools; and, an increased investment in student-led and administration-led initiatives intended to enhance the employability of students. Work-integrated learning, in particular (e.g., co-op placements, internships, summer studentships, etc.)

is being recognized as a crucial part of youth employment and youth employability, and is supported by strategies at the federal and provincial government level.

Furthermore, the academic learning environment continues to evolve. The traditional classroom environment is often supplemented – or outright supplanted in some cases – by online learning or blended (online and in-person) classrooms. Fieldwork, practicums, and work in teaching and research labs are often crucial components of programs of study throughout post-secondary education.

The current accommodation model in place throughout the post-secondary system is built on several specific assumptions: Students with disabilities are primarily undergraduate/college students, coming out of traditional high school learning environments; they are expected to take longer to complete their programs of study; they are anticipated to be in primarily classroom-based environments. Documentation provided from a medical professional is diagnostic in nature, leaving it to the accommodation specialist to infer functional impact. Accommodations in non-traditional academic settings (e.g., fieldwork, practicum and academic research labs) or disciplines (e.g., science, technology, engineering and mathematics and healthcare) do not fit this standard model. Funding envelopes for accessibility accommodations do not cover out-of-classroom learning environments.

How does the traditional accessibility accommodation model, designed three decades ago, fare in response to these changes in the academic environment and in student experience? How do students with disabilities interact with the changing nature of the student experience? Are students with disabilities disadvantaged in systemic, structural or attitudinal ways because of the changes to the student experience in the last two decades?

In this section of the report, we set out to address these questions by understanding the nature of the learner journey for students with disabilities in today's post-secondary landscape.

Admissions and Student Transition

Key Message: Significant structural, navigational and environmental differences exist between the K-12 and post-secondary learning environments. A strong need exists for students with disabilities to understand the cultural differences between these stages of education, and to learn effective management strategies.

Key Message: Equal access to technology – both mainstream and assistive – is essential in fostering student success in their educational journeys. Legislative and governmental programs to ensure technology literacy and access are beneficial to students from diverse backgrounds, in order to achieve equal access and equal opportunity for success.

Key Message: Mainstream devices are beginning to supplant specialized assistive technologies in some applications, and their eligibility as educational aids in financial aid and assistive device provision programs ought to be considered.

Key Message: A single set of standards for disability documentation, focused on functional impact of disability and accessibility requirements, ought to be established, and should be 'portable' for students nationwide.

Admissions and K-12/Post-Secondary Transition

There is a strong need for students with disabilities to understand the difference in post-secondary culture and k-12 culture. Beyond formal classroom learning, students are expected to learn the skills, strategies, and competencies that are embedded in negotiating day-to-day social situations. Some have argued that accommodations need to be individually tailored, but for Harrison (2015) a more universal design approach as an alternative is identified as potentially helpful.

Post-secondary learning institutions' disability/accessibility service providers can help by collaborating with their secondary level colleagues to provide knowledge and experience for applicants with disabilities. Whether a post-secondary institution possesses strong or poor admission practices impacts the number of students with disabilities who attempt to enrol. According to Eckes and Ochoa (2005), there is a strong need to examine the impact, and influence, of proposed and/or existing initiatives, policies, programs, and legislation.

For students with disabilities applying for post-secondary admission, there needs to be a recognition that all students' lifelong desire is to develop as active participants in society. Post-secondary institutions must lead the way toward innovative approaches of offering services to students with disabilities (Grigal, 2012). Specialized programs at the K-12 level (inclusive of residential schools and special education classes) often do not promote integration of students in regular classes.

Extensive planning and flexibility in staffing are necessary in these programs, which often times can lead to confusion for educators and their roles. Specifically, according to Hall, Healey, and Harrison (2004), these specialized programs with fieldwork act in ways as a barrier to participation. Educators need to identify these barriers and provide more self-reflective opportunities for students with disabilities.

Understanding transition services within post-secondary programs are more difficult for students with disabilities. As Milson (2007) states, school counsellors and educators can help facilitate successful transitions for students with disabilities. Another recommendation is to have a guest speaker visit secondary or post-secondary institutions to answer questions about transitions (Getzel, 2008). In the transition process, students with disabilities infrequently use rehabilitation services. To combat the lack of use of these services, more coordinated campus visits between two-year and four-year students with disabilities, and more collaboration between educators and professionals would be beneficial (Burgstahler, Crawford, & Acosta, 2001).

Increased attention needs to be paid by the federal and provincial governments, through legislation and policy, to the issue of K-12/post-secondary transition for students with disabilities. The silo'ed nature of K-12 and advanced education ministries at the provincial governmental level continue to foster several issues related to the transition, inclusive of the management of accessibility documentation, the transfer of appropriate assistive technology and classroom support, and perceived need for educational advocacy approaches.

Student Transitions and Mobility

Students may move from their entry-point within post-secondary to other programs, campuses or institutions. Students can, for example, transfer from college to university or vice versa, mid-program, or can attend integrated college-to-university dual certification programs. Students will

move between institutions after the completion of one or more of their qualifications in a variety of ways as well. For students with disabilities, these transitions can pose a series of unique challenges, in terms of portability of disability documentation, portability of institution-specific financial aid or technology, and navigating new learning environments and new policy/practice landscapes, which can be substantially different from what they may be accustomed to.

Part of the ongoing research related to this project (with additional funding through the Ontario Council on Articulation and Transfer (ONCAT) , via collaboration with researchers at Seneca College, York University, the University of Ontario Institute of Technology and Nipissing University, examines the student mobility question for students with disabilities. Meanwhile, through the consultations we have engaged in with students, staff and faculty thus far, the following transitional/mobility barriers, and potential solutions, have been identified and are offered for consideration. The project research will be expanded further to explore some of the key career related factors we've identified during this Employment and Social Development Canada funded initiative, through a grant from the Canadian Education and Research Initiative for Counselling (CERIC).

High school to Post-Secondary Education (PSE):

Barrier: Systemic differences between the K-12 and PSE systems (in learning environment, in nature and dynamics of pedagogical practice and professional development, in accommodation of accessibility requirements and in the engagement of students in the advocacy process) do not permit a seamless transition from one space to the next.

Solution: Transition planning (in the form of "how to navigate the PSE environment" workshops) is currently offered on an ad hoc basis for students with disabilities by PSE institutions' accessibility offices post-admission. Transition planning would be more effectively deployed in the high school setting, in Grades 11 and 12, in a more coordinated, collaborative and centralized manner.

Barrier: Educator training standards and practice that lead to lack of educator awareness/professional development around innovations in accessibility and accommodation in specific disciplines (e.g., science, technology, engineering and mathematics) may lead to scenarios where students are streamed away from these disciplines within the K-12 space –

an occupational injustice scenario, as well as a human rights issue, as these choices then impact severely the options available to students in PSE.

Solution: Requirement for more extensive training and professional development for K-12 educators around innovations in accessibility and accommodation in specific disciplines.

Between institutions:

Barrier: Institution-specific requirements for disability documentation and assessment at each school's point of entry.

Solution: Creation of a portable, harmonized, accessibility requirements "profile" of students with disabilities, which can travel from school to school within an integrated network of colleges and universities in Ontario.

College/Undergraduate to Graduate/Professional education:

Barrier: Lack of student awareness of differences among type and breadth of learning environments in different levels of post-secondary education.

Solution: Stronger transition programming for students with disabilities so that they may recognize and appreciate the differences among learning environments in current vs. future programs of study, as well as the impact of those differences on their accessibility requirements and accommodations, at an earlier point in their transition cycle.

Barrier: "Gatekeeping" by faculty, admissions committees and/or service providers, associated with knowledge or perceptions around the interface between the essential competencies of the discipline or program and the student's disability(ies), which may in turn lead to barriers to admission or effective participation of students with disabilities in graduate or professional programs.

Solution: Standards of policy and practice around accessibility in the context of professional accreditation competencies need to be encouraged; these discussions ought to take place from a "first principles" perspective that examine the root reasons for a given competency and the approaches taken to measure it.

Solution: Professional development for faculty and service providers at post-secondary institutions around the interface between essential competencies and their measurement and accessibility requirements.

Technology

The inclusion of students with disabilities during all stages of technology selection, support, and use can help them learn to better integrate new technology into their learning environments (Burgstahler, 2003). Being taught to use technology in this way can maximize their independence, productivity, and participation in all academic, and future work and real-life settings (Burgstahler, 2003). Learning how to use technology to demonstrate their skills and progress will allow students with disabilities to take more ownership of their learning experience (McBurney, Eaton, & Torunski, 2017).

Teaching, and understanding respective rights and responsibilities for instructors, and students, will provide instructional best practices. Policies, standards, and procedures at all academic and employment levels should be established with regards to accessibility, and use of technology (Burgstahler, 2003). Fichten et al. (2004) demonstrate that there needs to be an increased integration of adaptive computer technologies with general-use computer labs on campuses. Furthermore, Fichten et al. (2004) state improved learning opportunities for everyone involved, including disability service providers, students, and faculty is of need, as well as, the need to ensure adequate technical support for adaptive computer technologies on campus.

Lee and Templeton (2008) state that equal access to technology for all students, regardless of abilities, is an ever-increasing topic in the field of education due to the passing of federal laws. Some challenges that are accompanied with the access of technology according to Lee and Templeton (2008) are: funding, lack of family participation, availability of devices, and lack of assistive technology qualified personnel. Similarly, Sze (2009) argues that pre-services teachers' comfort level with assistive technology is low, identifying a need for training and/or qualified personnel. Conclusively, Ostrowski (2016) states that legislation should be passed for publishers to provide accessible digital source files to students with disabilities.

Mainstream devices (e.g., smartphones and tablets) are becoming increasingly useful for students with disabilities in the educational and real-life settings. In addition to using educational apps, the accessibility features of mainstream devices and accessibility-oriented apps enable a student to sometimes supplant the use of a costly specialized assistive device with the multipurpose mainstream device. Smartphone penetration among the young adult population is thought to be near-total; however, technology literacy

and awareness of the accessibility features of such devices can be lacking in students. Federal and provincial assistive device provision and financial aid programs need to consider the eligibility of a mainstream device used in an accessibility context as part of their assistive device funding guidelines.

Research, Calls to Actions, and Outcomes

Gyenes and Siegel (2014) determine the need for a Canada-wide standard for the diagnosis of learning disabilities. This would then cut the need for costly psychological re-assessment and updates throughout the life of the student. Students would need only to demonstrate how their learning disability was currently having an impact on their academic performance. This analysis could be done inexpensively, potentially by staff at accessibility offices or within the program of study (Gyenes & Siegel, 2014). Furthermore, Gyenes and Siegel (2014) stated there would also be a need for common criteria for acceptable learning disability documentation for first language speakers and those of ESL.

Importantly, according to Hart (2006), students with intellectual disabilities who had some type of post-secondary experience benefited greatly than those who did not. These students were much more likely to: obtain competitive employment, require fewer supports, earn higher wages, increased levels of self-esteem and possessed expanded social networks (Hart, 2006). Hill (1992) identified problems administration/educators have experienced when trying to provide services. These problems include: lack of funds, staff and resources, accessibility of campus, procedures for the identification of students with handicaps, obtaining adaptive equipment/materials, obtaining volunteers, faculty/staff attitudes, student over-reliance on services, and lack of students necessary for effective lobbying and program development.

Further research is needed to identify best practices for implementing a self-determination focus in post-secondary educational settings. Further, research is needed to improve the efficacy of assistive technology. Lastly, there is a strong need for research pertaining to the transition between institutions, from college to university, and/or from two-year to four-year programs.

Essential Requirements, Differentiated Instruction, and Accessibility

Key Message: Designing effective accessibility solutions for students with disabilities requires knowledge of the essential requirements of the course, program or discipline, as well as the functional impact of the student's disability(ies) in the context of the learning environment(s) the student is in.

Key Message: Disability can be conceived of as different learning styles – differences in how we envision the world around us, and differences in how we take in, process and communicate information.

Key Message: Recognizing that every student is a unique learner, with unique learning needs, enables a perspective shift among educators and policy makers to embed accessibility as a way of thought within the post-secondary education system.

Key Message: Accessibility solutions may be beneficial to other students' diverse learning needs, not only to students with disabilities.

Essential requirements and academic rigor are strongly linked in higher education. Essential requirements are defined as the knowledge and skills that must be acquired or demonstrated in order for a student to successfully meet the learning objectives of their course or program (Rose, 2009). Essential requirements are often well-defined for professional programs in the university and college settings (i.e., those programs where, upon graduation, a student writes a licensing examination in order to be admitted to the profession, and which are governed by a standard-setting body such as a professional society). They are significantly less well-defined for all other program types, including undergraduate and graduate education programs.

The conflation of essential requirements and academic rigour is a significant barrier to post-secondary education for students with disabilities, in need of policy and practice development. This is most evident at the graduate level, as reported by the National Taskforce on the Experience of Graduate Students with Disabilities (2016).

Consultations with the Disability Services Offices (DSO), institutional human rights offices, and graduate deans' communities led to the identification of the concept of essential requirements in graduate programs as a particular

and emergent challenge in the field. As previously described (see *Defining a New Culture: Creative Examination of Essential Requirements in Academic Disciplines and Graduate Programs*, 2014:

<http://www.cags.ca/documents/publications/3rdparty/Discussion%20paper%20Essential%20Requirements%20FINAL%202014-09-22.pdf>), the definition of essential requirements in the context of graduate education, by analogy to the application of *bona fide* occupational requirements and the associated legal precedents, requires identification of the specific competencies and skills a student must gain during their time in graduate school, and whether any of these skills must be demonstrated in a prescribed way.

Throughout higher education, essential requirements or competencies are discipline- and field-specific. In today's multi-disciplinary culture, it is entirely conceivable that two students in the same department could have significantly different competency requirements. In the context of students with disabilities, accommodation plans must take into account what the student needs to demonstrate unaided in their field. This in turn requires an appropriate understanding of both what the student's accommodation needs are as well as what the requirements of the discipline are. However, no one party may be knowledgeable in all areas. Indeed, the importance of informed faculty in collaboration with the student and the disability service provider cannot be understated in this context.

Additional to the discipline- and field-specific competencies are program-specific competencies established by the department and more general – non-technical – competencies that could be set out by the institution or other relevant body. As co-curricular programming focused on professional skills development continues to expand in scope and availability, the establishment of competency requirements – as well as their translation into “soft skills” for employment transition – needs also to be taken into consideration. Taken together, the clarification of the essential requirements for all components of post-secondary education needs to be folded into ongoing discussion in higher education.

The length and breadth of academe, encompassing the multitudes of disciplines, sub-fields and specialties, has long been a barrier to the establishment of unifying standards and competencies. Professional-stream programs, through their interface with professional accreditation bodies, are farther ahead in this area, having defined essential requirements and

competencies for students to follow. However, these programs often experience challenges, with respect to the interface between essential requirements and the institution's duty to accommodate its students.

Definition of essential requirements for university and college courses and programs requires a level of consistency and coordination nationwide, and even internationally. Many essential requirements have been internalized by instructors and educators, without being consciously articulated; however, they have also likely gone unquestioned over time, and we may no longer remember 'why' we are asked to teach and learn things a specific way. Moreover, some essential requirements (e.g., the timed nature of most assessments) have little to do with real-world application of learned concepts, or their application in the workplace, and very much to do with the logistics of conducting an assessment. In such cases, we have begun to conflate the act of measuring a competency or an essential requirement with the requirement itself – such fallacies are exposed during every conversation around accessibility, accommodation and essential requirements. Convening ongoing dialogue about the core requirements of higher education broadly, as well as specific courses, programs and disciplines, as part of the educational community is crucial to recognizing these challenges and to solution-finding.

A student's accessibility requirements and the essential requirements of a course, program or discipline interact to influence appropriate accommodation planning. Task or environmental modifications (accommodations) which do not interfere with the student's ability to demonstrate on their own the essential requirements of a course may be employed, while accommodations that alter the essential requirement may not be. Understanding the nuances of this interaction requires specific familiarity with the student, the functional impacts of their disability, the nature of the learning environment, and the core elements of the essential requirements in question. A level of creativity and willingness to look beyond the surface of the essential requirements is also required, as is a degree of collaboration among staff, faculty and students.

One approach to managing the tension between accessibility requirements and essential requirements is to apply principles of differentiated instruction to the learning environment. Differentiated instruction, more formally taught to K-12 educators, conceptually recognizes that each student is unique, with different learning needs and learning styles. In post-secondary education, differentiated instruction is intuitively used by graduate program

supervisors, and by preceptors in practicum environments. In the small group sizes unique to those environments, it is easier for an educator to consciously focus on their students and trainees as individuals, and to have a series of 1:1 interactions with them to reinforce the notion of students as individual learners.

Differentiated instruction also becomes important in the context of assessments, and in recognizing the different forms of assessment a student may be asked to engage in. Assessments can serve both as measurement tools for learning, and as learning tools the students can employ. Knowing which approach to use, and when, is part of the differentiated instruction paradigm.

In larger classes and group settings, a course coordinator or instructor may not consciously use differentiated instruction principles in working with the class, but other members of their teaching teams (e.g., teaching assistants in a tutorial or lab setting) might. Regardless, the notion of students as individual learners with individual learning needs, and its corollary of teaching to students' strengths, is an important perspective shift within higher education. The differentiated instruction approach allows us to envision disability as a different learning style – indeed, most disabilities can be conceived of as differences in ways human beings internalize, process and communicate information. By embracing this conceptualization of disability, accessibility solutions are no longer silo'ed or specific; as illustrated in the following two case studies, they become solutions beneficial to all students with different learning styles.

Alternative Format Representation of Visual Concepts

Particularly in the sciences, many key concepts are rendered through visual means – e.g., flow charts, diagrams, graphs and charts. Recent ongoing work at various centres in North America has examined the representation of data in different ways than visual ('data sonication') as a teaching tool. While deployed particularly for persons with sight loss, this approach can be beneficial for persons on the autism spectrum, with acquired brain injuries, or who may not be visual learners.

Concepts traditionally defined visually could be represented through sound or touch, or presented with supportive text, in order to provide multiple ways for students to access the material, without compromising the essential requirements of the topic. Recognizing different individual learner needs in this setting permits the presentation of material in multiple formats that all

students can interact with in a beneficial way, while providing the accessibility solutions helpful to students with disabilities.

Classroom group dynamics

Instructors have often identified difficulty in fostering group interaction among students who experience social anxiety or who are on the autism spectrum, and have considered online learning approaches as an accommodation plan for these students. However, this approach has several potential flaws:

- It may contravene the essential requirements of the course, if group dynamics and interaction is a critical skill set;
- It may fail to meet the learning objectives of the topic or course;
- It presents a fundamentally different learning experience to the student, and singles them out as 'different' within the classroom context; and,
- It fails to recognize other (e.g., cultural or linguistic) barriers to group interaction, in favour of the accessibility 'box'.

An instructor providing some facilitation in navigating group dynamics – permitting smaller groups, for example, or working with students within a group to identify suitable roles – would be more effective, and a solution that employs differentiated instruction principles without compromise to the essential requirements of the topic.

Although it is difficult to legislate changes in practice to integrate essential requirements, differentiated instruction and accessibility, it may be possible to incentivize their teaching in professional development programming on university and college campuses.

Breaking the Silo'ed Approach to Accessibility Accommodations: Toward Universal Design in the Post- Secondary Learning Environment

Key Message: A universally designed post-secondary education environment recognizes that space, learning and the human environment must all be accessible and inclusive.

Key Message: A universally designed human environment within post-secondary education takes into account the principles of flexibility, dynamism, collaboration, positive relationships, essential requirements, and the many aspects of student life.

During the work of the National Taskforce on the Experience of Graduate Students with Disabilities, the Taskforce felt that the two extant models of universal design (universal design for physical access, and universal design for learning), did not fully encapsulate concepts of universal design in the context of graduate education. As a result, based on the consultations undertaken in that project, a new model of universal design in higher education was proposed.

Here, we highlight that model in detail, and offer a synthesis of that model with the other two models of universal design, as well as the concept of differentiated instruction (the recognition of the individual learner journey of the student). This section will outline several principles that may serve as a benchmark when universally designing higher education environments. The principles that will be discussed evolved from an examination of the perspectives of graduate students with disabilities regarding the factors that contributed to their success in graduate school. The principles that will be highlighted were also derived from our discussions with faculty, professionals working in student services and other stakeholders who assist graduate students with disabilities.

The principles to be discussed are as follows:

- a. Flexibility: relates to the capacity of a post-secondary education environment to respond to the diverse abilities and needs of students with disabilities

- b. Dynamism: focuses on the ability of post-secondary programs and environments to adapt to students' changing needs and circumstances, whether they be academic or personal in nature
- c. Collaboration: Stakeholders working together and communicating openly with one another to ensure that students are well-supported and their needs met
- d. Fostering positive relationships: relates to interactions between peers as well as to interactions between faculty and students
- e. Does not contravene academic rigor: pertains to the balance that must be achieved between meeting the needs of students without compromising the integrity of a program or institution in doing so
- f. Encompasses the many faces of a student: recognizes the ways in which post-secondary learning environments are unique and takes into consideration the myriad responsibilities students adopt as part of their education

Overview

In post-secondary education, individualized accommodation (also known as personalized accommodation) of students with disabilities is the norm. This approach involves the provision of supports and services based on the abilities and needs of each person. While individualized accommodation may seem like the best practice, it is often costly, time-consuming (Pavri, 2010) and retroactive (Harrison, 2006). A lack of accommodation can then impact the learning and attainment of students who depend on supports and services to sustain their studies. Moreover, personalized accommodation relies on students disclosing their respective accommodation needs, typically through provision of a medical diagnosis of their disability(ies). Disclosure can be a difficult and complex decision for many students who fear the stigma attached to a label of disability.

The dilemma surrounding disability disclosure can be particularly prominent at the graduate level, where competence and autonomy are not only highly regarded but also traits that graduate students are expected to possess (Council of Ontario Universities, n.d.). Students might be worried that disclosing a disability will lead to their being treated differently, or they may feel that disclosing is not necessary (American Psychological Association, 2009). The concern associated with disclosure may be heightened for

students with invisible disabilities compared to students with visible disabilities because they must choose whether or not they reveal their disabilities (Côté, 2009).

Universal Design (UD) is geared towards creating barrier-free environments for everyone. Consequently, it is often promoted as a panacea to the challenges of individualized accommodation. UD is intended to ensure that products and environments are "usable by all people, to the greatest extent possible, without the need for adaptation or specialized design" (The Center for Universal Design, 1997). Derived from UD are Universal Design for Learning, also known as UDL (Rose & Meyer, 2002), which is focused on ways of displaying knowledge and skill acquisition; and, Universal Design of Instruction (UDI), which is described as "an approach to course design that seeks to create an appropriate learning environment for all students, including those with disabilities" (Shaw, 2011, p. 21). While research has been done on the benefits of UDL and UDI to undergraduate students, the meaning and impact of Universal Design in graduate education has yet to be considered beyond the traditional classroom setting. This also holds for diverse learning environments, including the co-curricular space, at large throughout post-secondary education.

In order for Universal Design to be relevant, responsive and beneficial to students with disabilities and all students more broadly, we must examine the principles of effective UD in post-secondary education. Here, we outline several principles that may serve as a benchmark when universally designing post-secondary education environments. The principles that will be discussed evolved from an examination of the perspectives of graduate students with disabilities regarding the factors that contributed to their success in graduate school.

While the focus here is on students with disabilities, it is vital to recognize that Universal Design can enhance the post-secondary experience for all students, not only those with disabilities.

Flexibility

Flexibility relates to the capacity of a post-secondary education environment to respond to the diverse abilities and needs of students with disabilities. Personalized accommodation in post-secondary education, although intended to be specific to the individual, can in many instances consist of a limited repertoire of generic supports. These supports may be dependent on the availability of resources and make assumptions about the individual's needs

based on what is traditionally provided to students with disabilities in other circumstances, such as being afforded additional time to complete exams. On the other hand, Universal Design ensures that supports and services are embedded in the environment proactively, *before* students encounter struggles, potentially reducing the need for accommodation. In this way, a universally accessible post-secondary education environment will recognize that a student's program, needs and circumstances can evolve naturally, and not rely heavily on potentially ineffective, generic supports if and when challenges arise. Moreover, while the behaviours, needs and expectations of students may be similar in some respects, Universally Designed environments strive to encompass the diversity of program requirements that students must meet and roles they must fulfil while in college or university.

Dynamism

Individualized accommodations tend to be provided reactively (Morgan & Houghton, 2011). Additionally, the services and supports available to students can vary greatly in their quality and scope from one area and even campus to the next (Stodden & Conway, 2003). It is also important to note that some students' disabilities may be unpredictable in nature (Brown, 2008) with regard to the ways in which they affect students' health, learning, engagement and daily living. For example, a student may find it much harder to maintain consistent attendance in the winter than the summer months. Additional needs or challenges can emerge as students grow more immersed in their programs and/or students find that previously utilized modes of coping and management are ineffective. Some students could be impacted, either positively or negatively, if their disabilities are progressive in nature, the work in which they are engaged changes or advances (such as from taking courses to thesis writing) or new technology becomes available for use in their respective programs. McEwan and Downie (2013) suggest that students with mental health-related disabilities do not respond favourably to a self-advocacy-based model of support.

Collaboration

While individualized accommodation typically centres on discussion between a student and a disability support advisor, a Universally Designed approach might favour teamwork. This could consist of the student, his or her supervisor and professors, anyone whom the student wishes to bring in and anyone who needs to be involved on the individual's behalf. It is true that, particularly given the complexity of graduate and professional programming,

the engagement of multiple stakeholders may be more conducive to fully understanding the student's needs and determining how best to address them. As a result, Universally Designed post-secondary environments would be collaborative, continually evolving to meet the needs of students and their programs. This involves recognition of the fact that students' needs may vary depending on what is being asked of them at different points in time and how their personal circumstances develop and evolve.

Fostering positive relationships

Although helpful, requesting personalized accommodations can cause students to feel stigmatized and sometimes isolated. These accommodations may also create barriers to the establishment of strong peer and faculty/student relationships. There is the potential for students with disabilities to feel isolated from peers because they require accommodations that other students do not. Faculty may also develop misconceptions of a student when accommodations are being provided (Burgstahler, 2003), before they have really had an opportunity to become acquainted with that individual's strengths and challenges beyond what is written on paper. A Universally Designed post-secondary education environment would cater to students' differences by allowing them to demonstrate learning and knowledge and participate in the environment in ways that align with their personal strengths. It would also ensure that they are naturally well supported without drawing unnecessary attention to their needs. This may help students with disabilities feel more comfortable in social interactions and also free faculty to get to know students as unique individuals rather than their disability(ies).

Does not contravene academic or professional rigor

Academic rigor and professional competence are highlighted by higher education institutions as two of the cornerstones of high-quality programs and schools (e.g., Ryerson University's Master of Professional Communication program). In principle, admissions criteria and program requirements are designed to safeguard academic and professional rigor. In practice, these strict admissions requirements may be a barrier to entry for many prospective students (some with disabilities) because their skills and experiences do not fit the traditional mould of what constitutes a capable student (Cross, 1981). Additionally, students who are admitted to programs may be stymied by rigid program requirements that do not take into account the difficulties they encounter in satisfying such requirements because of their disabilities. A Universally Designed post-secondary environment would

maintain the academic and professional rigor of these programs but recognize that this can be demonstrated and fulfilled in different ways. Furthermore, UD could support students with disabilities to satisfy program requirements by preserving the overarching competencies associated with these requirements but allowing students to tackle them in a way that reflects their different abilities and strengths.

Encompasses the many faces of the student experience

Individualized accommodations typically focus on campus-based instruction, which involves assignment and exam-based forms of assessments.

Depending on a student's program, however, he or she may wish (or be required) to complete course and/or lab work; serve as a teaching assistant; undertake research; complete fieldwork or a practicum; and participate in professional development opportunities. Students may also engage in volunteerism or extra-curricular service, such as students' associations or academic councils (which may consist of both on-campus and off-campus duties), in order to:

- a. Contribute to the betterment of their respective universities or the wider community;
- b. Augment their skills and knowledge base;
- c. Improve their preparedness for future employment; and
- d. Increase their competitiveness when applying for research grants and scholarships.

Additionally, students at the PhD level must take and pass a candidacy exam before they are permitted to conduct their thesis research, a stipulation that does not exist at any other level. It is also necessary to recognize that being a graduate or professional student often involves travelling for conferences and presentations. Consequently, a Universally Designed environment would be multi-faceted, with people being able to take advantage of supports and services that are embedded within the various areas that comprise their programs and lives as students. This would allow students with disabilities the level of flexibility they need to be successful without having to compromise their responsibilities, quality of life or personal standards of achievement.

Summary

Although complex, it is crucial that we consider the nature of Universal Design in post-secondary education when designing courses, determining program requirements, recruiting students, and designing supports and services. Traditional modes of accommodation, while well intentioned, are insufficient to fully meet the needs of students with disabilities. In this way, the purpose of Universally Designed educational environments is neither to ignore nor to force disclosure of differences. On the contrary, its goal is to foster an overall culture in which students feel comfortable disclosing their differences, if they wish to do so, without fear of recrimination or misjudgement. It must also be stressed that Universal Design does not preclude the provision of individualized accommodation if needed. In fact, individualized accommodations may still exist even with environments being Universally Designed in circumstances where they better equip students to complete their degrees. Thus, in order to be successful, the development of Universally Designed education environments must be multi-layered, paralleling the nuances of the student experience.

Finally, it is clear that for Universally Designed education environments to truly be universal, they must not only be usable by all students but also serve as the product of continuous, collaboratively-oriented, in-depth discussion and debate between all education stakeholders. While certainly challenging to implement, this kind of teamwork highlights not only the position of students in post-secondary education but also the value and importance of voices in education coming together to fuel positive change at the level of policy and practice.

Accessibility of STEM Careers in Canada's Knowledge Economy for Youth with Disabilities

Key Message: Training and employment in science, technology, engineering and mathematics (STEM) disciplines are increasingly important in Canada's growing knowledge economy.

Key Message: Youth with disabilities are under-represented in STEM disciplines and STEM careers.

Key Message: Youth with disabilities face many barriers to participation in STEM careers, including educator and employer preparedness, awareness and attitudinal barriers.

Key Message: Work-integrated learning (or pre-employment learning) experiences are important for both employers and youth with disabilities in STEM fields, in order to provide needed exposure for both the youth and the employer.

Key Message: Appropriate mentorship and the existence of role models in their careers are crucial to the professional development of youth with disabilities in STEM fields.

Key Message: Employer peer mentorship through professional networks is important to ameliorating employer attitudes around youth with disabilities in STEM.

Key Message: Programs fostering the adoption of universal design practices within the workplace will ameliorate barriers faced by youth with disabilities in STEM careers.

Formal science training is increasingly important in ensuring an appropriate level of scientific literacy among students, and, indeed, many programs at the post-secondary level mandate at least one science credit as part of their graduation requirements. Furthermore, a growing number of sectors in the knowledge economy require advanced training in the science, technology, engineering and mathematics (STEM) disciplines. Although it is accepted that the proportion of youth who enter STEM disciplines is low, these disciplines are increasingly important across all sectors of our economy, as the importance of a scientifically literate workforce continues to grow.

Careers in STEM increasingly require pre-employment learning (or work-integrated learning) experience, in the form of summer studentships, internships or co-op placements, and/or some form of advanced graduate education in the student's intended discipline. Many of these opportunities can be facilitated through the student's post-secondary career, but appropriate, reliable and comprehensive national data on availability, uptake and utility to the student and employer of work-integrated learning opportunities in the STEM sectors are lacking.

Youth with disabilities are under-represented in STEM careers and STEM programs within post-secondary education. Science education – and subsequent employment – present unique challenges to youth with disabilities, as well as to STEM faculty and educators. As a result of these challenges, which are encountered throughout the education system, a definite and significant “pipeline problem” exists for students with disabilities entering STEM at the undergraduate or college level. To counter this “pipeline problem,” multiple concurrent and synergistic approaches are required to address this gap. First, youth with disabilities with aptitude and interest in STEM ought to be more encouraged to enter STEM programs in college and university. Second, the significant barriers to full participation and success that exist within the learning, scientific training and employment environments ought to be addressed and ameliorated. Finally, the fostering of successful significant transition steps – undergraduate to graduate education, doctoral to post-doctoral training, and the transition to employment – prove crucial in increasing the representation of persons with disabilities in STEM fields.

Youth with disabilities face many barriers in acquiring a solid education in the sciences: these include, negative attitudes of educators and other professionals; lack of appropriate support in the classroom, lab and field; lack of access to provincial and national scholarships (e.g., NSERC, CIHR); lack of accommodations at scientific meetings; lack of access to competitive placements; and, lack of knowledge on the part of educators on how to appropriately instruct and work with a student with a disability. For the youth, disclosure of their disability, advocacy around inclusive teaching and accommodation, and the stresses associated with potentially being a trailblazer in their school or course/program, pose significant challenges. The educator faces challenges in understanding how to teach effectively to the student with a disability, in parsing the essential requirements of the scientific concepts, course or program, and in communicating these requirements to the student in an appropriate manner. The accommodation

specialist is challenged by their level of awareness of the technical competencies of the discipline, their understanding of the essential requirements of the program, and the dynamic between these essential requirements and appropriate accommodation solutions based on the student's needs.

In the employment realm, employers' negative attitudes around the capabilities and potential for success of youth with disabilities in STEM fields pose significant obstacles, often surmounted only after the employer has gained some positive experiences with these students, through pre-employment learning opportunities. Employer-centered mentorship through professional networks, where peer employers may share their success stories of working with youth with disabilities, ought to be encouraged, as should the success stories of those youth with disabilities who go on to establish strong careers within the STEM sectors. For youth with disabilities intending to pursue STEM-related careers, the existence of these role models is a powerful mentorship tool in overcoming the personal and systemic barriers to a career in the sciences. Youth with disabilities face the same challenges with disclosure and accommodation in employment as they do within their educational careers; employers may find that programs (including wage subsidy initiatives) built upon disclosure may not be successful unless the organizational culture and employer attitudes are transformed in order to provide a safer and more welcoming framework for employee disclosure.

A common accommodation for students with disabilities is the allocation of extra time to complete a task. For some students, this accommodation may no longer be required after they have learned a skill. However, for a subset of youth with disabilities (i.e. those with chronic fatigue, cancer, mental health, or other conditions); extra time may be a required as accommodation in the workplace. In addition, many graduates with medical disabilities may only be able to work part-time and/or may require more frequent breaks during their work. Many youths who require extra time to perform a technical procedure or reading face significant barriers around the time to completion during their training. These issues also present a challenge for employers in terms of decreased productivity/extra cost. STEM disciplines are increasingly competitive. Thus, this presents a significant barrier to getting hired. We offer no resolution for these issues, but rather offer this as a discussion point.

Finally, it is worth highlighting that, historically, accessibility in STEM careers has often been looked on as a matter of physical access, or a matter of technological usability. However, in the context of education and employment in STEM for youth with disabilities, it is important to appreciate a more global perspective on accessibility, inclusive of accessibility in education, training and professional development; accessibility in communication among employer, educator and youth; accessibility in mentorship and supervision practices; appropriate, personalized, accommodation in the workplace; as well as physical and technological accessibility. Adopting the principles of universal design within the employment setting and in the design of appropriate educational and pre-employment programming for youth with disabilities interested in STEM careers is essential to eliminating barriers in these sectors.

Recommendations:

- Data on the availability, uptake and utility of work-integrated (pre-employment) learning opportunities to youth (including youth with disabilities) ought to be collected by the federal government, in collaboration with the relevant post-secondary agencies and/or non-governmental organizations.
- Increased funding for work-integrated learning opportunities in Science, Technology, Engineering and Math (STEM) fields that are inclusive of youth with disabilities ought to be facilitated by the federal government. Working with the provincial ministries of education and advanced education, these programs ought to be facilitated at the secondary and post-secondary levels for youth.
- Programs funded by the federal government aimed at increasing the representation of youth – especially youth with disabilities – within STEM disciplines ought to be evaluated against the principles of universal design, and in the context of whether they meet the three proposed solution paths to eliminating the “pipeline problem” outlined in this section.
- Incentivization of educational institutions and employers to create spaces within STEM programs and careers for students with disabilities, akin to models that exist currently for aboriginal students in medicine (however, we argue against a wage subsidy model requiring the recent graduate to disclose to the employer, as the evidence for the success of such programs is inconclusive in the context of disability).

- Programs aimed at facilitating the creation and growth of mentorship networks for youth – especially youth with disabilities and under-represented minorities – in STEM careers ought to be developed and fostered by the federal government, in partnership with the appropriate agencies in the educational and non-profit sectors.
- The federal government should work with the post-secondary sector, and relevant professional societies, to facilitate discussions around the creation of necessary competencies or core “essential requirements” for STEM disciplines and careers, which may be used by students, educators and employers to more effectively design accommodations meeting accessibility requirements for youth with disabilities in the sciences.

The Co-Curricular Learning Environment in Post-Secondary Education

Key Message: The co-curricular learning environment is an increasingly important space within the post-secondary setting but is one that has been developed without concurrent thought to accessibility support.

Key Message: Navigating the co-curricular learning environment in the absence of established accessibility supports presents a significant barrier to, and increases the cognitive load of, students with disabilities.

Key Message: Students with disabilities, in managing their lived experience, accumulate experiences that mirror those obtained through formal co-curricular learning.

Today’s Canadian post-secondary education institution is presently situated within a broader international knowledge economy where having access to formal classroom curriculum, as well as informally acquired knowledge via ‘beyond classroom experience’ (a ‘hidden curriculum’ in postsecondary education) has made access to learning critically vital from a basic human needs perspective, and has raised the bar in terms of capturing access in unsanctioned areas from a Universal Design perspective. It is now important to recognize that *learning is omnipresent* and that *how we learn* is just as important as *what we learn* in a global village where acquiring employment to ascertain basic needs is an undeniable feature to day-to-day living (Lange, 2015; Maldonado, 2010; Trainor, 2008; Bauer, 2014).

Co-Curricular Engagement and Experiential Learning

The Co-Curricular Environment (CCE) is part of the Informal 'Beyond the Classroom Doors' Environment. The CCE is understood as the 'application of education' or 'living the education learned inside the classroom' (Elias, 2015). Institutions are increasingly creating 'Co-Curricular Records' (CCR) for their students, to reflect their learning in this space. An accessible model for students who currently match CCR standards but who might not find genuine access to the co-curricular space and who might not reflect 'employers' desired traits' in a standard CCR format, would be to include the genuine experiences of students in 'alternative spaces' by way of formulating CCR reports that are 'Non-Institution Specific' and that reflect the core aspects of students' experiences and competencies.

As Elias points out, the three main objectives of the CCR within the Canadian Post-Secondary Environment are:

1. Searchable Directory to find opportunities
2. Tool to reflect on and identify tangible skills acquired through postsecondary
3. Official Record of Involvement

While aspects of the CCE are indeed part of the Canadian university and college institution, there are also elements to this space that are not within the scope of the school. Co-curricular experiences that are not fostered by the post-secondary institution could include community engagement and volunteerism, participation in church groups and other religious affiliations, or advocacy and fundraising in formal and informal settings. These blend with the global market where students must increasingly rely on their own personal resources for access (Malданado, 2010; Trainor, 2008; Coleman 1988; Lange, 2015):

Economic Capital
Social Capital
Cultural/Linguistic Capital

A leading recommendation for Co-Curricular engagement and experiential learning for students with disabilities within the Canadian post-secondary environment is to quantifiably credit 'student experience' and 'student success' as valuable employable skills. The notion of employability as a practical trait or research variable suggests that the scope of what can be

considered for a person's potential access to employment is largely perceptual whereby employers contribute to or deny access based on their own perception of what is considered valuable (Lindsay S 2015, Adams T 2014, McDougall C 2014, Sanford R (2012); Lindsay S, DePape A-M (2015); C. Benoit et al. 2013). This prompts the need to consider alternative spaces that students might have, might be, or potentially will be participating in. Spaces for consideration include:

- Volunteerism
- Accommodation Negotiations
- Previously held employment
- Supplementary Advocacy (support workers who are with students on a day-to-day basis and act as a form of accommodation)

This is not to assume that students with disabilities cannot access the CCE entirely or must be judged to another set of standards. This is to suggest that students who identify with a disability have a potential cognitive stressor that differentiates their experience within their respective intersectional identity. Identifying with a disability can manifest potential barriers to access in the CCE's informal environments for learning.

There must therefore be an expansion for how the CCE and CCR are considered by both the Canadian post-secondary educational institution and prospective employers.

Students who identify with a disability at any point of their PSE journey can be provided with a CCR 'card' that they can populate with their respective experiences that relate to prospective employment.

Elias (2015) describes in their study core competencies that employers seek while hiring:

- professionalism
- decision-making
- experiential learning
- technological aptitude
- technological mastery
- time management

These competencies are only a few examples of what elements are embedded in aspects of the accommodation process that a student must

themselves negotiate, for example. Another example is a student who must navigate inaccessible environments with assistive technology that might not be the most effective for their needs, as well as inequitable.

This method for CCR alternatives could also be considered as a method to include students who might identify with multiple roles (caring for a family member); students who are culturally integrating to new environments as well as students who are re-integrating after health leave [Eckes & Ochoa 2005; Holmes, 2005; Condra)].

Based on evidence in literature from labour market outcomes and employer values of education, there is the potential for an incongruence between the perception of what is understood of the lived experiences and effort that a student with a disability puts forth in their respective Canadian Post-Secondary Educational institution, and what the student has done when it comes to understanding Student Engagement and Student Success.

As Elias, 2015 describes in her study on Employer perceptions of Co-Curricular Engagement, there is often a disconnect between the actual skills gained during post-secondary and how skills are articulated (Elias, 2015: Findings); the disconnect might occur based on how the skills of an individual are perceived by the employer who might be assessing the candidate and evaluating on a set of criteria (Elias, 2015; Zarifa, 2015; England, 2003).

This phenomenon is described by other researchers as the “job skills gap” which not only can result in systemic unemployment and underemployment, but can also possibly lead to other phenomena such as job mismatch (Zarifa, 2015; Deveau, 2015; Hirsh, 2013; Pitman, 2014; Wente, 2013). Depending upon employer bias towards a person with a disability, the “jobs skills gap” could have a more compounding effect when combined with actual lack of experience in a given field.

There is a discrepancy in the co-curricular records of students who identify with a disability and students who do not identify with a disability. As Zarifa (2015) points out, individuals with disabilities who complete post-secondary education earn significantly less than their peers without disabilities and have a harder time securing stable employment (NCD2007; Roeher Institute 2004; Shier, Graham, and Jones 2009). Wannel and Caron found that labour force participation was significantly lower for students with disabilities across all levels of education with significant earning gaps (Wannel and Caron, 1994: 44-45).

For example, when it comes to hiring processes, Lindsay et al. highlights the core differences in job interview content between youth with disabilities and youth not identifying with disabilities. Lindsay et al. focuses on the actual rigidity of the hiring process and the possible difference in perceptions it can elicit between candidates simply by way of such process and procedure.

Whereas both groups could draw upon similar experiences for “soft skills” such as people and communication skills that were gained in ‘like-institutions’ such as school environments, groups differed when it came to providing examples for something the candidate was proud of where youth with disabilities offered fewer examples. Overall, youth with disabilities differed significantly by way of:

1. disclosing their condition;
2. giving fewer examples related to customer and teamwork skills;
3. experiencing greater challenges in providing feedback to team members and responding to scenario-based problem solving questions; and,
4. giving fewer examples from past work, volunteer “and extracurricular activities.”

Stafford et al. points out from the international literature, besides high rates of unemployment and underemployment for young adolescents who do and do not identify with a disability, adolescents who do identify with a disability are at a particular risk to experience universal poor work outcomes even after pursuing post-secondary education (Cocks and Thoresen, 2013; Hemmeter et al., 2009; Miles Morgan, 2012; Wakeford and Waugh, 2014). Factors such as Attitudinal barriers (Critten, 2016), a competitive market (Lindsay et al., 2016; Shaw et al., 2006) and inactive employer participation in the process of inclusion (Galvin, 2005).

While there is a dearth of literature pertaining to topics surrounding the participation of students with disabilities in Co-curricular spaces at Canadian Post-Secondary Educational Institutions altogether, as well as critical theory on this topic, there also continues to be ongoing momentum and growth in this space without a sanctioned Disability Support Space that can guarantee “just in time” support, or ensure that the quasi-post-secondary market hybrid environment is equipped to handle challenges that students might face while navigating difficulties or rewards.

The CCR tool that reflect student engagement acts as a means to objectively quantify student engagement and also as a direct signal to the market for employers who can understand the potential worth of someone's prospective Human Capital where the CCR becomes a sort of 'translation tool' to understand how formal classroom skills are becoming applied in more practical settings (Astin, 1993; Chickering, 1969; Tinto, 1987; Balser; Breward).

According to Elias (2015) who surveyed employers from the Career Centres at the University of Toronto, 77% of employers said that they were very likely to review a CCR tool if it was attached to an application and 73% said that they were very likely to review a CCR if an interviewee brought one to an interview. Moreover, employers from this survey placed a higher level of importance upon the Co-curricular Record than the Extra-curricular record which raises concern for the compounding issues of access to employment beginning in young age; youth with disabilities are underrepresented in employment which compounds later life employment, which in turn can also contribute to vulnerable aspects of adulthood such as transitions to and from institutions (Carter, Austin, & Trainor, 2012; D'Amico & Marder, 1991; Lareau & Horvat, 1999; Lindsay, Adams, Sanford, McDougall, Kingsnorth, & Menna-Dack, 2014).

Informal Spaces & Capital

Peripheral social institutions, including a person's social network and access to personal capital, that affect a learner's health and well-being are becoming increasingly recognized by authors who write about transitions throughout the post-secondary experience, as well as the outcomes of poor accessibility, and inclusion for learners in a North American setting (Lange et al. 2015; Trainor et al. 2013; Trainor, 2008; Maldonado, 2010). Aspects such as culturally relevant supports, health & well-being of learners, socio-economic support, equitable considerations for inclusion such as geographic distance, seasonal factors, energy, and multiple roles must all be taken into consideration when considering aspects of design for the current landscape of Canadian post-secondary education (Holmes 2005; Mitrou et al. 2014; Edwards et al. 2014; Kumar 2014; Jung 2002; Harrison, 2015; Maldonado 2010; Hankivsky 2008).

This aspect of the peripheral spaces for a student with a disability ought to be considered within not only the formal classroom, but extending beyond sanctioned accommodation spaces to informal spaces that contribute to

student success such as co-curricular, extra-curricular, opportunities to develop social capital for prospective employment and application of gained classroom skills (Trainor 2008; Trainor, 2013; Maldonado, 2010; Lindsay & DePape, 2015)

Professional Development

Key Message: Persons with disabilities remain underrepresented in the labour force. Post-secondary student experience, in particular professional development programming, have become increasingly essential to the employability of students. However, these programs are not often accessible to students with disabilities, and represent a significant barrier to their employability.

People with disabilities remain disproportionately underrepresented in the labour force. This is in spite of the growing proportion of persons with disabilities who have a post-secondary education. Just 52 per cent of working-age Canadians with disabilities are employed, versus 76 per cent for people without disabilities (Understanding the Realities: Youth Employment in Canada, 2016). This statistic is somewhat misleading, however, as it treats all disabilities within a single, monolithic, framework. The reality is considerably different for different populations of persons with disabilities. For example, persons who are blind or partially sighted are significantly less employed (36.7% of working age persons with sight loss in Canada are employed; Canadian Survey on Disability, 2012).

Canadian PSE graduates with disabilities fare significantly worse than their non-disabled peers at landing employment. The quality of employment, for those who do obtain it, is limited to jobs with little opportunity for advancement. Younger PSE students with disabilities face different challenges. These challenges include a lack of previous work experience and inexperience in advocating for appropriate accommodations at work. The expert panel on youth employment in 2016 found "youth with a disability had an unemployment rate of 25.9%, compared to 15.3% for youth without disabilities. Youth with more severe and mental health/psychological disabilities have even higher rates of unemployment." (Understanding the Realities: Youth Employment in Canada, 2016)

Graduates with disabilities continue to fare worse in employment, in part, because professional skill-building opportunities during their post-secondary education are insufficiently accessible to them. Professional skills include the suite of knowledge, skills, and attributes generally accepted as necessary for

entrance into and success in a given profession or vocation. Professional skills sets include a combination of “soft” skills that are widely applicable in many occupations and are often highly valued (such as teamwork, problem-solving, communication, and relationship-building) as well as field-specific technical and contextual knowledge. There are two major pressure points during their post-secondary education where students with disabilities face significant barriers to access and accommodation that will impact their transition to employment: (see: Chart 1)

- The first is in their participation in activities related to the core curriculum of their educational program. Programs with significant required practical, experiential, and vocational elements can present a challenge.
- The second pressure point is in the fulfilment of the range of experiences that are available to students and have become expected of graduates: activities such as part-time employment, volunteering, work-integrated learning, study abroad, and pursuing additional training in addition to an academic program.
- Students with disabilities are more likely than their non-disabled peers to encounter significant barriers that prevent them from participating in these activities.

Chart 1: Professional Skill Development Opportunities are Pressure Points for Students with Disabilities

Curriculum-based	Extra-curricular and informal
Practical and applied learning (including: laboratories; training in equipment, systems, and techniques) Work-integrated learning (co-op placements, clinical and field placements, internships) Other experiential learning (community service learning, study abroad, etc.)	Mentorships/mentoring relationships Skill-based workshops and non-credit courses Volunteering, campus activities, clubs and associations Employment and entrepreneurial ventures

A number of factors affect the degree to which students with disabilities encounter challenges at either of these pressure points. In terms of factors internal to the student, factors include their status as a student (e.g., the type of program/field of study they pursue, whether full-time or part-time); the nature of disability; their history of disability; their approach to disclosure within activities related to their education and skills development; and their interests and preferences. (See Chart 2)

Chart 2: Student-Centred Factors that Influence Participation in Professional Skill Development

1. Student Status

- First time to PSE, returning to PSE after break, or advanced student
- Undergraduate, graduate, diploma, certificate, continuing, college, university
- Part-time or full-time
- Financial aid/disability benefits recipient
- Program/field of study (vocational, professional)

2. Student's Type of Disability

- Category of impairment
- Visible vs. non-visible
- Chronic vs. episodic

3. Student's History of Disability

- Arriving to PSE with disability (long history)
- New diagnosis (includes rehabilitating, retraining)
- Emergent condition while in PSE

4. Student's Approach to Disclosure

- Non-disclosing
- Selective disclosure
- Full disclosure

5. Student's Self Perception, Preferences, & Skills

- Interests, goals, ambitions
- Talents, skills, abilities
- Confidence or notions of what they think they can do

Source: The Conference Board of Canada

- student body. Employment services for people with disabilities exist in the community, but the connections to PSE are not always strong. Students with disabilities often don't access career counselling until later in their programs, and seldom receive career counselling during the time when they are considering programs to apply to.
- **Some work environments remain exclusive and are closed to students with disabilities.** Though PSE institutions offer some students with disabilities with a familiar, safe space to pursue their education, once they leave the institution to pursue off-campus experiences and employment, things change. They can find themselves unsupported and unprepared to advocate for themselves to organizations that may lack familiarity with students and new graduates with disabilities. Employers are disconnected from PSE institutions and lack guidance to help them encourage and support students/new graduates with disabilities to pursue positions in their organization.

These gaps and challenges lend themselves to a series of discrete recommended action items at the legislative, governmental, institutional and community agency/professional society levels, as well as for individuals with disabilities and those who provide professional development opportunities for them. These include:

1. Make professional skill building opportunities accessible to students with disabilities.

- Every professional program in PSE that has a practical component should have a disability adviser within the program available to students, who acts both as a program adviser, workplace/field adviser, and career transition adviser. There should be screening for students with disabilities upon admission and provide appropriate supports.
- Provide funding for employers to create a position for a student with a disability; helps cover the cost of accommodating them
- Require PSE institutions to establish clear policies on accommodation for any Work Integrated Learning (WIL) opportunity created through government funding. These policies must articulate students' legal right to request and receive reasonable accommodation. These policies must be communicated clearly to students.

- Commit government funding to projects that help inclusive, diversity-friendly employers connect with PSE institutions and students.
- Earmark funding to create WIL opportunities for students with disabilities in fields where this group is under-represented.

2. Help overcome the misconception that students/new graduates with disabilities are costly for an employer to hire.

- Provide incentives for employers to create positions for students with disabilities: offer tax rebates to employers who make investments to hire students/new grads with disabilities (software or equipment, staff transportation pools, inclusivity training for staff, etc.); offer wage subsidies to employers to hire students with disabilities.
- Communicate the business benefits of hiring persons with disabilities. Reward best practices in hiring and accommodating students/new grads with disabilities.

3. Motivate employers to implement inclusivity in hiring students.

- PSE institutions can identify and recruit employers that are willing to take on students with disabilities.
- PSE institutions and employment agencies can offer training to employers on making accommodations for students. For example, LEADS Employment Services in London, Ontario, is working with Western University/King's and local employers to provide training and support for employers wishing to hire students and new graduates with disabilities.
- Governments can offer tax incentives, wage subsidy/wage sharing programs to employers hiring students with disabilities and implementing accommodations.

4. Prepare students to seize experiential opportunities before, during and after their program.

- Clearly articulate program requirements to prospective students. Clearly identify the required components of experiential activities and outline accommodation supports.

- Help students with disabilities find out about experiential and work-integrated learning opportunities.
- Hold career events and tailored career development for PSE students with disabilities: mock interviews, career fair, workshops, mentoring. York University's mentoring program for students with disabilities is a promising model. As part of this project, we worked with both Simon Fraser University and the University of Toronto at Scarborough to develop and implement universally designed and fully inclusive career development symposia using two different, equally effective, models of student engagement.
- Host training on disclosure, requesting accommodations, self-advocacy, searching for disability-friendly employers, managing one's disability in the workplace.
- Help students prepare for the transition to the work placement, get accommodations in place, do a test run of transportation, visit the site in advance, assign a transition support person.
- Offer employment counselling tailored to students with disabilities in their first years after graduation. Be prepared to deal with common issues facing new graduates in the workplace.
- Invite graduates with disabilities to return as mentors, trainers, and advisers to assist new students with disabilities.

5. Track diversity indicators in experiential learning programs and outcomes for students.

- Allow students the opportunity to disclose disability in program applications and/or surveys/evaluations. Important confidentiality concerns – some students will not disclose to employer but might disclose in confidence to school.
- Organizations like MITACS are making an effort to track diversity indicators, including disability status, in their applications for internships.
- Track outcomes such as:
 - More students with disabilities participate in meaningful professional skill building experiences.
 - More inclusive WIL programs

- More entrepreneurial activity among students/new graduates with disabilities
- More participation by SwD in career development programming
- More participation by SwD and PwD in professional disciplines
- More participation in by SwD in part-time and summer employment
- More workplaces actively recruiting students with disabilities.
- Improved employment outcomes for PSE graduates with disabilities

Career Transition and Career Education

Key Message: Many barriers to employment for students and recent graduates with disabilities link to career transition supports and the co-curricular program environment within the post-secondary system.

Key Message: The career exploration offices of universities and colleges, as well as government programs and legislative priorities, play an important role in influencing employer attitudes around disability

Key Message: Sustained programming – e.g., mentorship, networking, and one to one engagement – enhances the likelihood of employment for students with disabilities, and also enhances employer attitudes toward employees with disabilities through prolonged exposure

Key Message: Transition support programming is beneficial in preparing students for the workforce, and also for ensuring they are appropriately ready for the different accommodation frameworks in place in the workplace compared to the educational environment

In thinking about supporting students with disabilities, the literature scan for this theme included looking at research databases spanning education, health, social sciences and humanities. In total, from the period of 1996 to 2017, there were 581 unique articles, government reports, and other related research papers found pertaining specifically to supporting career development and career transitions of students with disabilities. The thematic analysis presented here draws primarily from the 280+ research articles, of which the majority were published between 2006-2017.

Research on the experiences of students with disabilities transitioning to the workforce indicated several factors that support their success in gaining meaningful employment. The themes that emerged from the analysis

included identification of the helpful and hindering factors that support securing employment; how to better support their transition from post-secondary education to the workforce; the role career services can have in supporting students with disabilities; and supporting students with disabilities in vocational related fields. This section ends with recommendations emerging from the literature on how to better support students with disabilities transition and achieve success into their careers and world of work.

There is evidence that completing almost any type of post-secondary education significantly improves an individual's chances of securing meaningful employment and subsequently earn better income (Gilson, 1996; Madaus, Foley, McGuire, & Ruban, 2011, 2002; Migliore, Butterworth, & Hart, 2009; National Council on Disability and Social Security Administration, 2000). From the literature, there was a strong endorsement of the value of completing a post-secondary credential for students with disabilities that benefited their social, economic, and overall well-being (Flannery, Yovanoff, Benz, & Kato, 2008; Gillies, 2012; Kleinert, Jones, Sheppard-Jones Harp & Harrison, 2012; Stodden & Mruzek, 2010; Unger, Pardee, & Shafer, 2000; Zafft, Hart, & Zimbrich, 2004). Research, some cited in other sections of this report, have found that there is a disparity in completion of PSE by students with disabilities (e.g., Schindler & Kientz, 2013). However, a few studies demonstrated that a disability did not necessarily deter successful completion of a program of study. For example, Unger, Pardee, and Shafer (2000) in their United States study of 124 students with psychiatric disabilities from three community-supported programs, found that these students were just as likely to complete their studies as their peers without disabilities. Related to the discussion of career supports, approximately 50% of these students (n = 124) with psychiatric disabilities found employment within their field of study (Unger, Pardee, & Shafer, 2000). Walter and Dirmyer (2003) also found that there are great benefits of education for individuals who are deaf or hard of hearing. Each higher level of attainment results -- not only in increased economic gains -- but the apparent social benefit of reducing the size of the disparity in employment rates and earnings between the deaf and hard of hearing population of working-age individuals and their hearing peers. In this sense, education appears to reduce the discrimination against deaf and hard of hearing individuals in the workplace and thus is a mechanism for promoting social justice (p.48).

An analysis of national vocational rehabilitation data found that "youth with ID [intellectual disabilities] who participated in post-secondary education

were 26% more likely to leave vocational rehabilitation services with a paid job and earn a 73% higher weekly income" (Migliore, Butterworth, & Hart, 2009, p. 1). Zafft, Hart, and Zimbrich (2004) found that, for 20 transition age students with ID, participation in post-secondary programs with individual supports resulted in higher employment rates (100% vs. 43%) and higher wages compared to similar students who were served in a more traditional high-school-based transition program. Moreover, students who participate in PSE are less likely to need ongoing supports as they move on with their lives and into the roles of employees (as cited in Sheppard-Jones et al., 2015, p.120).

In a study that looked specifically at labour market indicators for STEM versus non-STEM graduates with disabilities, using the American Community Survey data from 2009-2011, Hawley, et al., (2014) found that overall labour market participation was lower for those with disabilities; however, these indicators somewhat improved for STEM graduates with disabilities.

Employment: Helpful and Hindering

Helpful Factors

Several studies report a **positive relationship** between completion of post-secondary and vocational training and employment (Kleinert, Jones, Sheppard-Jones Harp, & Harrison, 2012; Unger, Pardee, & Shafer, 2000). Using data from the American Bureau of Labour Statistics, Madaus, Grigal, and Hughes (2014) report that people with disabilities' employment rates increase with their level of education. As the hindering section will elaborate, simply being employed is different from being employed in ones' field and earning a good wage in that position; several other studies found that persons with disabilities are more often to report being under-employed, working part-time, or not in their field of study (Gillies, 2012).

Networking & Mentorship

People with disabilities and their relationships are very important because these relationships can make a difference in their leadership development and overall success in the outside world (da Silva Cardoso et al., 2016; Carter et al, 2010; Garrison-Wade & Lehmann, 2009; Madaus, 2006; Richmond et al., 2007; Sannicandro & Lieber, 2016; Wilder et al., 2001). In several studies, students with disabilities identified **networking**, including connections initiated by faculty members, as an important factor in finding meaningful employment (Dowrick, Anderson, Heyer, & Acosta, 2005; Gillies,

2012). For example, Gillies (2012) found that in a study of 10 university students with a range of disabilities, networking was critical to their success. As, one participant explained, while his university education was important, it did not give him all the things he needed to secure employment- namely experience and networking (Gillies, 2012). Diez (2014) and Sniatecki, Perry, and Snell (2015) both found the performance, and overall positive experiences in college, were influenced by good relationships with faculty and staff. Faculty in particular were key in either helping or hindering students through their learning.

Internship/Summer Employment

Another theme that emerged from this literature was the importance of having some relevant and “real-world” work experience prior to completing their post-secondary education. Researchers found that students who had either access to internships or summer employment (or other part-time work opportunities) not only gained the relevant life skills of time management, skills related to their job; they also gained valuable experience that demonstrated to future employers they were employable and their previous employers also served as valuable references (Lindstrom, Kahn & Lindsey, 2013; Madaus, 2006; Nietupski et al., 2004). As noted elsewhere, the opportunity to study-abroad was also important for students with disabilities. Prohn, Kelley, and Westling (2015) found that students with intellectual disabilities and those without, both benefited in participating in an international study program that enriched their personal development, bonding/social inclusion, and learning from those with intellectual disabilities in England and Ireland.

Transition training

To support transition from school to work, Gillies’ (2012) participants spoke of their need to have more hard skill training during their studies (e.g. interviews, resume writing) to enable their transition to work. These participants also recommended that having transition workers, who specifically helped them with networking and building relationships with employers through outreach would better support their transition to successful employment opportunities (Gillies, 2012).

Self-advocacy & Accommodations

Self-advocacy becomes critically important to recent graduates with disabilities when they are employees. Much of this can be attributed to the needs-based employment accommodation models currently in existence and

used within the human resources context. Employees, in order to be accommodated, must disclose to their manager, and go through defined processes involving Human Resources and (in large employers, where relevant, Occupational Health and Safety). In smaller employers, which such infrastructure does not exist, 'needs based accommodation' is still practiced, due to the need to justify the accommodation request in the context of the person's role in the organization.

A few studies (Cawthorn & Leppo, 2013; LoGiudice, 2016; Russak & Helliweg, 2015; Summers et al., 2003; Zaft, 2006) found that support programs that taught self-advocacy supported students in their personal growth and development, particularly in regard to their interpersonal skills which are important in a work environment (e.g., active listening to others, learning to ask for help). As LoGiudice (2016) stated "promot[ing] disabled persons as experts of their own experiences, where they are able to identify their needs and achieve their goals, and staff can validate, empower, and advocate for themselves". In another study, participants who were able to control their mental health issues of depression by taking the initiative to sign themselves in for psychiatric hospitalization, were, as a result, able to continue in employment (Unger, Pardee, & Shafer, 2000). For students who are hard of hearing/deaf, Cawthorn and Leppo (2013) found in their survey of 1350 professionals that the nature, quality, and consistency of accommodations were critically important for supporting their transition into further education or employment opportunities. Madaus (2008) found the accommodations for persons with learning disabilities required at work were related to setting goals and priorities, time management, and arriving early/late to work.

In a series of articles dedicated to post-secondary students who are on the Autism spectrum (ASD) or had other developmental or learning disabilities, the research recommended these students have a coach who provides guidance, advising, and transition supports (e.g., Madaus, 2008; Rando, Huber, & Oswald, 2016; Vogel & Sharoni, 2011). A transition program that provided ASD participants with an academic coach found an increase in their GPA and overall retention (compared to other students not in the RASE program) was higher (Rando, Huber, & Oswald, 2016). Madaus (2008) found the accommodations for persons with learning disabilities required at work were related to setting goals and priorities, time management, and arriving early/late to work.

Hindering Factors

As one would expect, while there are many factors that influence the support of persons with disabilities successfully securing employment after their post-secondary training; the research also identified several factors that hindered this transition. The following themes emerged: ongoing systemic, structure, and attitudinal barriers. Within each of these overarching themes, the following themes emerged: lack of coordination between stakeholders, lack of accessible internships and employment training, lack of self-advocacy training and the negative impact of financial barriers.

Systemic

Systemic barriers can be thought of in terms of the organizational policies, programs, and procedures that support people with disabilities through post-secondary and successfully transition into their chosen careers. The literature provided examples of programs that empowered students with building their self-advocacy so they can communicate with employers their needs and supports required (e.g., Dowrick, Anderson, Heyer, & Acosta, 2005). However, there is a disconnect between the practice of teaching students with disabilities self-advocacy skills and allowing those students to apply those skills to their own educational or career path (Stodden, Conway, & Chang, 2003). Summers et al. (2003) also found that there is a lack of support staff to help teach students with disabilities to advocate for themselves. Damiani and Harbour (2015) during their focus groups with 12 graduate teaching assistants, reported that there is a gap between existing institutional policies and their application, leading to an unwieldy system that forces students to advocate for basic accommodations and may result in unsatisfactory accommodation (Dowrick, Anderson, Heyer, & Acosta, 2005, Damiani & Harbour, 2015). Stodden, Conway, and Chang (2003) noted from their research the lack of inter-agency coordination impeded students' ability to transition from education to employment.

Within the post-secondary system, when it comes to disclosure of the disability it is currently the student's responsibility because without disclosure there is no responsibility for the institution to provide accommodation or services (Newman, & Madaus, 2014). The onus of self-disclosure onto the individual implies that employers, like post-secondary institutions, are therefore not responsible to provide accommodation or services. Faculty, student affairs professionals, and administrators at post-secondary institutions need to have some basic knowledge of the policies, practices, and consequently legal aspects that concern students with

disabilities (DeMitchell & Cloud, 2004; Díez et al.2014; Geyenes & Siegel, 2014; Hall & Belch,2000; Marcum & Perry, 2010; Katsiyannis et al, 2008; Summers et al.2014).

As professionals seek to understand the needs of students with disabilities, it is valuable to recognize that those with disabilities are more like others in campus communities than they are different (Nutter & Ringgenberg, 1993; Jarrow, 1987). One way in which students are alike is that all need to feel that they matter—to have a sense of belonging on campus and to believe that others care and are concerned about them (Schlossberg, Lynch, and Chickering, 1989). (as cited in Hall & Belch, 2000, p.10)

In thinking of the co-curricular (e.g., outside class experiences) of being a college student, “many departments at U.S. institutions of higher education are strongly encouraging and even requiring overseas experience as part of a student’s degree program” (Soneson & Fisher 2011 p. 59). Soneson and Fisher (2011) and Holben and Özel (2015) in their research describe the significant structural challenges students with disabilities face in participating in international exchange programs. This disadvantage to gain such personal and professional development creates another barrier to students with disabilities in building their resumé, enriching their educational experiences, and further developing skills sets that would broaden their future employment opportunities.

Research related to post-secondary completion found that one of the factors that was influenced by students with disabilities’ departure was the lack of adequate finances (Fichten et al., 2014; Unger, Pardee, & Shafer, 2000; Madaus et al.2014; Schindler & Kientz, 2013; Ramasamy, 1996). Employment that provides meaningful and livable wages is one potential support structure to assist students with disabilities during their studies that not only supports their completion but provides the necessary training and experience required by employers upon their graduation (Gillies, 2012). Dowrick, Anderson, Heyer, and Acosta (2005) and Stodden, Conway, and Chang, (2003) recommended that barriers to employment could be better supported with more coordination between various stakeholder organizations to ensure better integration and transition supports (e.g., between PSE institutions, disability organizations, and employers).

Another theme that emerged from the literature is the fact that while many students with disabilities go onto employment opportunities after they complete their degree, many end up under-employed as finding relevant

employment in their field of study and earning a liveable wage were difficult. For example, "While some of the participants expressed a measure of contentment with their current employment status, several held positions that were below their educational qualifications. Samantha and Kimberley were both Science majors; the former worked at a coffee shop while the latter worked as a live-in caregiver" (Gillies, 2012, p 18). The success of employment is also related to the disability. In another study, "[...] high unemployment rates of 60–80% are reported for individuals with psychiatric disabilities, and this group has the highest rate of unemployment of any group of people with disabilities. The typical onset of psychiatric illness commonly occurs between late adolescence and early adulthood. This frequently disrupts entrance into and continuation of successful postsecondary education and/or paid employment, affecting the ability to achieve economic and social independence. This results in cycles of poverty, isolation, homelessness, and other social and personal problems" (Schindler & Kientz, 2013, p.29).

Structural

Structural issues were often described as physical (e.g., accessible access ways; modes of transportation) that prevented students with disabilities gaining the opportunities while they were students to help them prepare for the skills and expectations of the work world. For those who have mental illness, "the most frequently cited barriers to employment included the symptoms of mental illness and the side effects of medication to treat the illnesses, difficulties with employment policies (such as the effect of salary on benefits), inadequate assistance from programs and agencies, stigma, and internal barriers such as low self-esteem" (Schindler & Kientz, 2013, p.30).

Dowrick, Anderson, Heyer, and Acosta (2005) and Gillies (2012) report that physical accessibility issues made participation in internships and site-based job training difficult for student with disabilities. Participants reported that structural barriers continue to be factors in their ability to successfully find employment post-graduation. One participant described her method of investigating a site prior to her interview to determine if the location would be accessible for her as a person with disabilities and often finding it was not. Another participant reported that a lack of transportation options limited her ability to be responsive to interview requests (Gillies, 2012). Damiani and Harbour's (2015) study found similar challenges, with participants who are currently working as university teaching assistants describing the

tenacity required for resolving accessibility issues as unreasonable and reporting reluctance to request physical accommodations for fear of employment security.

Addressing not only the accessibility and mobility issues at the work sites, transportation to and from work, without adequate accessible transit or one's own personal means of transportation hindered where and when students with disabilities could go for interviews, where they could work, and for how many hours a day. Independence is important for empowerment and having one's own car was significant in supported education and positively related to employment in that it allowed the mobility and independence to get to work (Unger, Pardee, & Shafer, 2000).

Attitudinal

In addition to the systemic and structural barriers, research continues to demonstrate the shifts required by society in supporting peoples with disabilities due to stigma, stereotypes, and negative perceptions (Dowrick, Anderson, Heyer, & Acosta, 2005; Knapp, 2008; Madaus, 2008; Madaus, Foley, McGuire & Ruban, 2002; Schindler & Kientz, 2013). Whether as university students or as employees, some choose not to disclose their mental health issues due to the fear of discrimination (Madaus, Foley, McGuire, Ruban, 2002; Martin, 2010). A study conducted in 2002 revealed "that nearly half (46.1%) of the respondents who did not self-disclose cited a perceived fear for their job security or a concern about negatively affecting relationships with co-workers or supervisors" (Madaus, Foley, McGuire, & Ruban, 2002, p. 368). Furthermore, Madaus et al., (2002) argue "it is becoming increasingly clear that despite the protections of the ADA (Americans With Disabilities Act), some adults with LD feel trepidation related to the issue of self-disclosure" (p. 368). However, Martin's (2010) study also found that for those who did disclose, the majority found that they received more help, e.g., extensions to submit work, and subsequently had improved outcomes and satisfaction in the workplace.

Supporting Transitions: Lessons learned

Employment Support

Universities could provide more formal **transitional support** (i.e, resume writing, interviewing, job searching) (Gillies, 2012). Formal transition workers hired by the university (or even by the employer) could bridge the gap between school and the workplace (Gillies, 2012). There was also

recognition that there needs to be an ongoing assessment process for gauging efficacy of transition programs and keeping them responsive to change (Fichten et al., 2014; Pearman, Elliott & Aborn, 2004; Grigal, Dwyre, Emmett & Emmett, 2012). In a study of 500 graduates with learning disabilities, Madaus (2008) found that those who were employed used self-accommodation techniques to do their work successfully. "The most common compensatory techniques were "setting goals and priorities" (60%) [and] "time management" (50%)" (Madaus, 2008 p.296), making skills training in support of these areas a priority. Vocational rehabilitation counsellors have acknowledged and recognized the need to further address the concept of self-advocacy with students with disabilities to ensure they are confident and capable to address any potential accommodation needs with their prospective employers (Cawthon & Leppo, 2013).

In regard to students with ADHD, it is imperative for career counsellors to engage in the topic of work safety with students prior to their transition into the workforce (Canu, 2007). A vocational counsellor should inform and explore safe, meaningful and desirable job options with students living with ADHD, as an avenue to prepare them to enter the workplace and ensure they are aware of the concept of safety and its importance in factoring into their career decisions (Canu, 2007). In terms of students with intellectual disabilities, Zafft (2006) found that an educational coach or advocate can help them have a positive college experience if support, skill development, and careful advising are available. Briel and Getzel (2014) found that students on the Autism spectrum in their career planning experiences at college discussed four main themes: choosing a major, using career centres, self-disclosure, and career related services and supports.

Human services training programs, with their traditional emphasis on fieldwork and structured internships (Brown & Kinsella, 2006; Flannery, Yovanoff, Benz, & McGrath-Kato, 2008) are ideal settings for students with disabilities to engage in relevant career learning. Supervised internships in community agencies offer all students an opportunity to practice skills in real world settings and integrate core knowledge with applied field-based experiences (Sweitzer & King, 2004). These field experiences may prove especially valuable for students with disabilities who often prefer active contextual learning" (Lindstrom et al., 2009, p.10).

Employers could further support their employees who have disabilities by addressing particular accommodation policies and procedures within their organizations. For example, "(i) flexible hiring rules; (ii) flexible working

hours (i.e. part-time jobs; the promotion of teleworking); (iii) micro financing; and (iv) more attention paid to adapting the workplace and providing sufficient infrastructure. The majority of disabled workers need some sort of accommodation at the workplace in order to perform their job. By providing economic incentives, governments can encourage businesses to adapt their facilities so that people with disabilities may become fully integrated and productive" (Roggero, Tarricone, Nicoli, & Mangiaterra, 2006, p. 648). The Canadian federal government does its part by offering significant funding annually to businesses and community spaces through the Enabling Accessibility Fund. Specifically, learning that is directly associated with specific career objectives, and that involves community-based, hands-on training has been associated with positive outcomes for students with disabilities (Flannery, Yovanoff, Benz, & McGrath-Kato, 2008; Madaus, 2006, 2008; Roessler & Brown, 2000).

Mentorship

Mentorships have a positive impact on the success of post-secondary students with disabilities and provide meaningful service learning opportunities for faculty and other students. (Carter et al, 2010; Damiani & Harbour, 2015; Dowrick, Anderson, Heyer, & Acosta, 2005; Kleinert, Jones, Sheppard-Jones, Harp, & Harrison, 2012; Lindstrom et al., 2009; Nietupski et al., 2004; Wilder, Jackson, & Smith, 2001). Lindstrom et al. (2009) state that regular structured feedback and ongoing progress monitoring is a key feature in helping students with disabilities succeed in college, which could be extended to the work environments.

Collaboration Works

The idea of collaborative models across the community having a positive impact on successful transitions for student with disabilities into post-secondary and employment (Folk, Yamamoto, & Stodden, 2012; McCormack & Mazzotti, 2011; Nagle, 2001). As Schindler and Kientz (2013) noted "there is a similarity or commonality of supports and barriers associated with both higher education and employment. They are not separate entities but are intertwined. Therefore, skills learned to enhance supports and decrease barriers in higher education may easily transfer to employment and vice versa" (p.39). For example, a case study of the Point of Transition Service Integration Project (POTSIP) found that participants benefited from that program's focus on improving interagency cooperation (Noyes & Sax, 2004). Regular meeting ensured transition "teachers, adult agency personnel, Regional Center and DR administrators or supervisors in an effort

to improve interagency cooperation and address systems barriers, such as those identified by the stakeholder groups" (Noyes & Sax, 2004, p. 41). An example of a collaborative approach is found in Gothberg's, Peterson's, Peak's, and Segaghat's (2015) review of the Triangulated Gap Analysis Tool (TGAP), designed to support students, staff, and employers to identify and create annual goals that address gaps in skills, including non-academic skills, need to prepare students for education, career, and independent living.

Career Services & Supports Matter

Career services and supports, both within the post-secondary system and employment agencies/organizations, are critically important to smooth students with disabilities' transition into the workforce (e.g., Briel & Getzel, 2014). Schindler and Kientz (2013) remind us that "each person has a unique situation, and consequently, the number of supports and barriers greatly varied . . . , and the combination represented a unique picture for each person" (p.39). Therefore, understanding the diversity between and within disabilities is important in providing appropriate supports. For example, vocational rehabilitation services (VRS) have proven to be effective and useful for supported employment consumers with intellectual disabilities, as these clients reported general satisfaction with their employment one year after completing these services (Tashjian & Schmidt-Davis, 2000). Another study of 176 students with disabilities who participated in a college level occupations skills training program found that successful completion resulted in higher wages (Flannery, Yovanoff, Benz, & Kato, 2008). Successful completion of the program was supported by financial aid, career planning services, and completion of vocational courses related to participants' learning plan (Flannery, Yovanoff, Benz, & Kato, 2008). This research also found that "participants who required unusual work accommodations to succeed on the job were more than three times less likely (odds ratio = .30) to persist and be successful in the program than participants who did not need extensive or unusual job site accommodations" (Flannery, Yovanoff, Benz, & Kato, 2008, p. 33).

Recommendations

- Collaboration between post-secondary (e.g., disability services, career services), employers, employment organizations, advocacy groups, and other stakeholders is key to supporting the transition of students

with disabilities into career pathways (e.g., programs, policies, and services).

- Empowering students with disabilities (e.g., self-advocacy training) will not only help support their success in college or university but also serve them well as they enter into the workforce
- Mentoring matters: having appropriate mentors and opportunities to network with employers prior to the completion of post-secondary education strengthens the ability to successfully transition into the workforce
- Experience matters: it is important for students during their post-secondary education to gain relevant skills and experiences that translate well into the workforce (e.g., part time work, internships, co-op).
- Professional development is needed for providers at the post-secondary level and at the employer level to better understand how to support students with disabilities transition to work.
- Employment policies and practices must better align to the accessibility, accommodation, and support needs of people with disabilities.

There are some gaps in the literature that also merit further study:

- A longitudinal study is needed to better understand the transition and work experiences of peoples with disabilities.
- Gender analysis of self-reporting needs to be better understood perhaps as an examination of potential gender disparities in employment outcomes.
- The limited literature related to Indigenous peoples with disabilities is clearly an area that needs more focused research.

Aboriginal Students with Disabilities

Key Message: A significant gap exists in our understanding of the experiences of students who self-identify as Aboriginal and as living with a disability.

In the review of the literature on students with disabilities, a clear gap exists around the experiences of students who self-identify as Aboriginal and having a disability. Ramasamy (1996) noted “there has been no comprehensive follow-up study to assess the employment situation of Native American youth” (p.174). In the United States and in Canada, Aboriginal peoples are over represented in social indicators related to poverty, being underemployed or unemployed, health, educational achievement, and and/or being over-represented in terms of rates of incarceration (Holmes, 2005; Ramasamy, 1996; Richmond, Ross, & Egeland, 2007). The relationship between education and health have been made elsewhere in this report. For Aboriginal peoples the benefits of education and employment are the same. Meanwhile, Richmond, Ross, and Egeland (2007) “saw higher proportions of respondents with thriving health status among those with higher levels of education and those who were employed” (p.1828).

There is clearly a gap in the career-related information and supports for Aboriginal students with disabilities. Jackson and Smith (in press) found that most Navajo students in America did not have a clear idea of what to do to reach the particular career goals that they had identified as desirable. Students knew that they needed a degree to pursue a career, but they were unfamiliar with what career required what degree. They were also uncertain about what was expected of them to acquire that degree. Future planning should also include discussing cultural conflicts that might arise and how to resolve them in the worlds of post-secondary training and work (Wilder, Jackson, & Smith 2001, p.122).

Dodd, Fisher, Ostwald, and Rose (1992) found a 70% overall unemployment rate for Native American adolescents with learning disabilities. Compounding this problem, post school services and training opportunities for exiting youth are very limited, due in part to the rural locations in which they live. Therefore, Native American youth are at extremely high risk as they move from school into adult life (cited by Ramasamy, 1996, p.174).

Ramasamy (1996), Ramasamy, Duffy, and Camp (2000), Wilder, Jackson, and Smith (2001), Holmes (2005), and Richmond, Ross, and Egeland (2007)

all mentioned the importance of tribal connections, cultural practices and activities in supporting education and career aspirations. The disconnect between the two meant that Aboriginal youth are having to decide between, rather than being empowered to live balanced and whole lives in both worlds.

Ramasamy (1996) also says for Native American youth, becoming active in tribal life should be an important result of transition. For reservation Native Americans, participating in (a) family chores, (b) cultural and spiritual activities, and (c) ceremonies within the tribes appear to be more appropriate goals than striving toward competitive employment and independent living. To accomplish these goals, transition has to include the family chores and cultural activities to fully address the cultural beliefs of Native Americans. Though these activities may not substitute for paid employment, they can promote mutual interdependence and community living (p.178).

“By recognizing cultural influences, teachers can better individualize services. Individualization should be based on disability classification and cultural context” (Wilder, Jackson, & Smith, 2001, p.119). Richmond, Ross, and Egeland (2007) stated that indigenous health is dependent on social processes and connections between individuals, families, and communities. Because the structure and function of individuals' social relationships can affect the development of community norms and values, it is critical that we understand how social support can shape health status within Canada's indigenous populations (p.1828).

David Holmes' (2005) *Embracing Differences: Post-Secondary Education among Aboriginal Students, Students with Children and Students with Disabilities* uses nation-wide data from 30 Canadian universities and 16 Canadian colleges to provide information about the various samples of students who attend post-secondary and engage with services such as admissions. Holmes (2005) presents data from the CUSC (2002) survey, of 389 Aboriginal university students surveyed, 13.6% reported that they had a disability of some type. Where in the college sector, using the data from the 2002 CCSSP, of 746 Aboriginal college students surveyed, 12.3% reported that they had a disability). Holmes (2005) reported that Aboriginal Peoples have an overall disability rate of 31%: 30% for those are between the ages of 15-64 and 53% are 65 and over (18). The APS reported that Aboriginal Peoples had more seeing (25%), hearing (35%) and speech (13%) than other Canadians (18).

Ramasamy, Duffy, and Camp (2000) in their survey of Apache Native Americans with learning disabilities (n=24) compared to peers without learning disabilities (n=24) found “higher rates of unemployment and substance abuse, as well as longer periods of cohabitation in parental residence for students with learning disabilities compared to peers without learning disabilities” (p.1). They also noted that over half of those Apache youth with learning disabilities, who were employed (29%), mostly at entry level jobs were more often than not paid below minimum wage. Employment for both groups of these Apache youth was further complicated due to limited employment opportunities on or near their reservations.

Accessing Student Services

Key Message: Students have often looked at their engagement with student services portfolios as a “one stop shop” and have worked through their disability services offices. Meanwhile, student services staff are often lacking appropriate training in working with students with disabilities.

Key Message: Student Experience is comprised of social integration & academic integration. To change the culture around accessibility, there needs to be supplementary advocacy.

Key Message: Implicit Bias is an inefficiency to the Accommodation Model.

Key Message: Institutions require support that will provide Universally Designed learning environments that are founded upon empirically grounded research.

Accessing Student Services on Campus

Throughout our consultations, students with disabilities reported a preference to use their disability services offices as a primary point of contact in navigating the post-secondary student services sector. Additionally, student services staff, including career exploration offices staff, have consistently identified a lack of professional development around working with students with disabilities. While some institutions have a degree of integration and collaboration among student services portfolios and the disability services offices, many maintain silo’ed approaches to service delivery.

The organizational placement of Disability Services/Accessibility Services offices may impact this phenomenon. Two prevailing models of organization

exist: The health services model, which aligns disability services provision with campus counselling and mental health services, and campus healthcare; and, the academic success model, which aligns disability services with student academic success resources, including career offices.

Multi-Dimensional Assessment on 'Accessibility Culture'

Rolling consultations that assess policies, procedures, organizational behaviour, equipment, access to resources and inclusion climate have been and are part of the current approach to understanding student experience in accessibility, and momentum towards Universal Design. These multi-dimensional assessments on 'accessibility culture' capture the perspective of various participant groups, i.e. student, service providers, faculty, career service professionals etc. to form an understanding of the student experience around accessibility culture on the Canadian Post-Secondary Education campus.

Part of the success that has occurred is not only the enriching research that have come from pursuing a multi-dimensional assessment, but also the very organic growth of networks that seek to maintain 'Standards of Excellence' as a result of our NEADS Landscape of Accessibility project teams' delivery of consultations. For example, as a result of identifying a gap in accessibility in the co-curricular environment, many career service professionals, and employers that attend seminars hosted by NEADS are not only interested in having focus group-type research consultations, but also being proactive on these matters.

Consultations have been conducted as part of a multi-method research approach to assess the current state of access, as well as the imagined state on a wide range of variables pertaining to Accessibility and Inclusion in the Canadian Post-Secondary environment, including: *campus services, co-curricular, extra-curricular and accommodations.*

Findings to date

Service Providers

Based on feedback from service providers, some of their prevailing needs for inclusion are: being supported as providers of services by having the appropriate resources in the form of energy, time, equipment and funding to provide students with their needs; being provided with training on appropriate inclusion techniques and problem-solving; removing conflicting policies in accommodation provision that alter student trajectory or prevent

students from accessing their environments (example: part-time status preventing housing opportunities); being trained on assistive technology and devices to empower students on campus.

Student Perspective

Based on feedback from students, some of their prevailing needs regarding the state of access to services are: timely, accessible formatting for learning materials, equipment or socializing with peers that is provided in the Canadian Post-Secondary Educational classroom environment; timely, accessible formatting for materials, equipment or socializing that is provided in Canadian Post-Secondary Educational campus, or 'school' related activities environments (example: off-campus activities that relate to building a personal network that requires added time due to accessibility needs, and that deters from task-related accomplishment).

Assistive Technology Specialists

Based on feedback we received from Assistive Technology Specialists during our consultations, sometimes technology for students is not matched properly for the learning of the student. A recommendation is to create more accessible support centres that centralize intake for students with disabilities who might require assistive technology by having assistive technology specialists at 'key' points, such as the Disability Service office, and at several areas on campus. Forms that students with disabilities are expected to file to retrieve assistive technology ought to be accessible to ensure that a student can obtain their accommodations more quickly, and without added stress. Faculty members who might not have exposure to assistive technology, or advancements in assistive technology ought to be trained on the latest assistive technology that is used by students with disabilities.

Faculty

Based on Disability Service providers feedback around faculty involvement with accommodations, the accommodation model continues to be a challenge in any classroom for various reasons. One of these reasons, primarily, is the attitudinal barrier. The course curriculum that is designed by a professor becomes the benchmark expectation. Additionally, the interaction between student and professor becomes a supplementary benchmark of assessment that, within the subconscious mind, can influence student experience.

Multi-Dimensional Assessment to date

Over time, we have witnessed a shift in mind set from all stakeholders involved in the student experience: *student, disability service provider, assistive technology specialist, faculty*. This shift has included the desire to engage on topics such as momentum towards Universal Design, and the substantial growth on developing a concrete network of Co-Curricular Environment to facilitate transitions into the workforce. The research team of the National Educational Association of Disabled Students continues to support these endeavours.

Being able to have access to opportunities such as mentorship, study or work abroad, and work-integrated learning, that is not hindered due to lack of accessibility awareness or embedded structures to support student; being provided with environments that enable students with disabilities to feel accepted as who they are, not socially isolated, or segregated.

There is currently a scarcity of literature that exists regarding students with disabilities in the social and co-curricular environment. Some authors emphasize the absolute necessity of participation within social or extra-curricular activities as a method to develop skills that can be beneficial for working life (Ennals 2015, p 118; Reed 2010, p 8). The successful navigation of campus culture for a student with a disability does produce very adaptable skills: managing oneself, and their complex set of traits; negotiating the social space; and doing academic work (Ennals, Fossey, Howie, 2015).

Based on *The Opportunity to Succeed*, a report by the Ontario Human Rights Commission which encompassed over 125 submissions, lack of understanding and faculty attitudes towards accommodation were reported to be the greatest external barrier to student Post-Secondary Education success (6 OS).

A review by Hindes et al. states that the success of students with disabilities in a regular classroom is influenced by instructional interactions and teachers' beliefs regarding the nature of the students' difficulties (Jordan & Stanovich, 2001; 2003).

Literature has indicated that an embedded feature to accessibility and acquisition of accommodation is the location of the post-secondary environment, and the size of the institution (Fichten 2001; 2003; Jaworska 2016). This finding suggests that Canadian university and college environments continue to struggle with service limitations, funding

limitations, sustainable government funding, quality assurance and other related concerns that have been previously raised from involved groups (e.g., Association of Higher Education and Disability [AHEAD], 1996; Canadian Association on Disability Service Providers in Post-Secondary Education (CADSPPE), 1999; Chapman University, 1999; NEADS, 1999a; University of Alberta, 1993) and individual researchers (see, for example, Albert & Fairweather, 1990; Rose, 1991).]

Incentivizing Employer Programs in the School-to-Work Transition for Students with Disabilities

Key Message: Students and recent graduates with disabilities are not often successful at securing long term employment when using employer incentivization programs related to disability.

Key Message: How employer incentive programs are designed evaluated and measured is crucial in establishing programs that work effectively. Poorly-designed programs in the disability space are often designed around flawed assumptions.

Employer attitudes and implicit biases toward disability can impact students with disabilities in a variety of ways. Tangibly, employer engagement can impact the recruitment and retention of students in work-integrated learning environments (e.g., summer studentships, internships, co-op placements, practicums, etc.). For such short-term placement programs, employers may not be willing to deploy resources to ensure that students are accommodated. Employers may be similarly reluctant to hire persons with disabilities just out of their post-secondary programs, because of perceptions around their experience, commitment and/or ability to succeed in the workplace.

Incentive programs to address this barrier to successful employment have been developed at the federal and provincial levels. Most often, they take the form of financial incentive programs such as tax breaks, employment accommodation funds or wage subsidy programs. They may also take the form of employer awards and recognition programs. Incentive programs are often short-term in nature, intended to give employers motivation and bootstrap them into fostering equity, diversity and inclusion initiatives.

A major challenge with all such programs is the nature of their outcome evaluation models. As noted in Section B of this report, measurement of diversity and representation is not the same as measurement of an inclusive environment (in this case in the workplace). Furthermore, the short-term nature of incentive programs poses an additional challenge: Employers are incentivized to recruit recent graduates with disabilities, but not necessarily to retain them beyond the envelope of funding. Incentive programs also may not necessarily include an evaluation of sustainability plans as part of their application process – thus, employers may not have reason to develop any

sort of retention plan for their employees with disabilities, or sustainability plan for the program itself when the funding envelope runs out.

Finally, many disability-specific incentivization programs that employers become a part of are often built on models for other diversity identities, and are based on fundamentally flawed assumptions around disability, accessibility, disclosure and accommodation. For example, employers may not be aware of current disability demographic statistics or are only aware of disclosure and accommodation ethics from the legal and human resources policy standpoint and may be designing programs on inaccurate data and models.

As a result of these structural and systemic limitations, students and recent graduates with disabilities have anecdotally reported general dissatisfaction with employer incentive programs, as they do not lead to long term or sustainable employment. The design of incentivization programs, therefore, needs to be carefully thought through, and research around most effective practices needs to be conducted. Program design, program evaluation during the funding application process, and program outcome measurement are all crucial elements of success that need to be fostered at the legislative, policy and funding envelope implementation levels.

Section E: Recommendations

Guiding Principles

1. Recognition of the student's individual lived experiences and learner journey, and the impact they have on the student's accessibility needs in education and employment, particularly as related to the interactions among social assistance, financial aid and lived circumstances with the educational environment.
2. Accessibility and inclusion legislation, policies, practices and guidelines must recognize the evolving nature of disability and accessibility for individuals over time (particularly for individuals with chronic, episodic and degenerative disabilities), and in particular the evolving nature of the interaction among disability, technology, and the learning and workplace environments

Legislative Recommendations

3. Establish weighting criteria that emphasize *all* aspects of inclusion, accessibility and universal design in legislation, policy and funding, to centralize this goal and foster a culture of inclusion within education and employment, rather than a silo'ed approach
4. Mandate accessibility of features, methods, applications and protocols used by persons with disabilities in navigating education and employment
5. Mandate accessibility, transparency and integrity of the record-keeping infrastructure for persons with disabilities in their education and employment
6. Mandate harmonization among policies that relate to standards, services, provisions of accommodations in education and employment
7. Offer financial incentives which are proven to be effective (positive and negative) in both short-term and long-term contexts, or recognition programs, to businesses fostering accessible and inclusive workplace environments, implementing accommodations, and who are willing to recruit students/new graduates with disabilities. Conversely, programs which are found to be beneficial in the short-term, but not the long-

term, or programs with questionable effectiveness (e.g., wage subsidy programs) ought to be dis-incentivized

8. Implement and enforce legislation that requires publishers to provide accessible digital source files to students with disabilities
9. Canada-wide standards for documentation of functional impact associated with disability (especially learning disabilities) would minimize the need for costly re-assessment and updates throughout the life of the student
10. Establish common criteria for acceptable learning disability documentation for first language speakers and their ESL counterparts
11. Mandate post-secondary institutions to outline a nationally accepted set of essential requirements for all their programs of study

Recommendations for Federal and Provincial Governments

12. Encourage regions and institutions without well-rounded accessibility policies to develop them
13. Encourage and fund consistent, accessible, longitudinal, nationwide data-gathering efforts on student engagement in the college sector
14. Draw lessons from other jurisdictions, which have demonstrated progress and/or success in accessibility, on mechanisms to stimulate policymaking and institutional development
15. Streamlined and portable documentation requirements, focused on functional impact and accessibility needs, which can be taken by students along their journey within the educational system (K-12 through postsecondary)
16. Subsidies for costs of living must be adapted to equitably provide opportunities for persons with disabilities in a holistic manner – for example: if students are spending more on food, housing and medication, they might also not have adequate funding for digital inclusion, thereby creating digital exclusion and compounding barriers
17. The primary diagnosis of a learning disability should be publicly funded through a universally accessible funding mechanism, as is the case for

all other disabilities, and should be available to the student in a timely manner

18. Provide funding for employers to cover accessibility and accommodation costs for students with disabilities in practicum and internship settings
19. Commit government funding to projects that help inclusive, diversity-friendly employers connect with PSE institutions and students
20. Earmark funding to create work-integrated learning opportunities for students with disabilities in fields where this group is under-represented (i.e. in Science, Technology, Engineering and Math (STEM) fields)
21. Provide incentives for employers to create positions for students with disabilities: offer tax rebates to employers who make investments to hire students/new grads with disabilities (software or equipment, staff transportation pools, inclusivity training for staff, etc.). Refrain from wage subsidy programs, as employers do not often retain employees with disabilities once the wage subsidy has been removed or have them performing meaningful duties during their wage subsidy period
22. Communicate the business benefits of hiring persons with disabilities. Reward best practices in hiring and accommodating students/new grads with disabilities
23. Link participation in government-funded work-integrated learning programs to employer accessibility and inclusion
24. Review eligibility requirements and age restrictions in government employment programs, in the context of the lived experience of students and recent graduates with disabilities – particularly in light of the extra time that many students with disabilities may take to complete their programs of study
25. Administrators and policymakers should establish policies, standards, and procedures at all academic and employment levels to assure that accessibility is considered when electronic and information technology is procured

26. Streamline processes such as healthcare documentation, DSO, Faculty and service providers in PSE that handle *Disability Documentation* to provide 'just in time' access
27. Revisit the funding and eligibility guidelines for federal and provincial financial aid programming to better address issues faced by students with disabilities in all levels of post-secondary education
28. Convene policy discussions to better understand, and minimize the negative impact of, the interactions among provincial and federal financial aid programs for students with disabilities, including social assistance programs, student financial aid programs, and technology access programs
29. Increase resources and support for institutional disability services offices, and include co-curricular program support as part of the funding package
30. Consider establishing disability services provision as an accredited and regulated profession (e.g., as a regulated allied health sciences or education/student services profession)
31. Data on the availability, uptake and utility of work-integrated (pre-employment) learning opportunities to youth (including youth with disabilities) ought to be collected by the federal government, in collaboration with the relevant post-secondary agencies and/or non-governmental organizations
32. Increased funding for work-integrated learning opportunities in STEM fields that are inclusive of youth with disabilities ought to be facilitated by the federal government. Working with the provincial Ministries of Education and Ministries of Advanced Education. These programs ought to be facilitated at the secondary and post-secondary levels for youth
33. Programs funded by the federal government aimed at increasing the representation of youth – especially youth with disabilities – within STEM disciplines ought to be evaluated against the principles of universal design, and in the context of whether they meet the three proposed solution paths to eliminating the “pipeline problem” outlined in this report

34. Incentivization of educational institutions and employers to create spaces within STEM programs and careers for students with disabilities, akin to models that exist currently for aboriginal students in medicine (however, we argue against a wage subsidy model requiring the recent graduate to disclose to the employer, as the evidence for the success of such programs is inconclusive in the context of disability)
35. Programs aimed at facilitating the creation and growth of mentorship networks for youth – especially youth with disabilities and under-represented minorities – in STEM careers ought to be developed and fostered by the federal government, in partnership with the appropriate agencies in the educational and non-profit sectors
36. The federal government should work with the post-secondary sector, and relevant professional societies, to facilitate discussions around the creation of necessary competencies or core “essential requirements” for STEM disciplines and careers, which may be used by students, educators and employers to more effectively design accommodations meeting accessibility requirements for youth with disabilities in the sciences

Recommendations for Institutions

37. Post-secondary institutions should develop faculty training resources on essential requirements, differentiated instruction and universal design for learning (including the distinction between differentiated instruction and UDL)
38. Assess risks associated with lack of policy, or delegating policymaking, in light of a rapidly changing legal context for accommodation
39. Conduct systematic reviews of policies in order to ensure that they meet the principles of inclusive design, by:
 - Synthesizing policies that can streamline access for front-line staff who work with students with disabilities
 - Eliminating conflicting policies that prevent access for students with disabilities

- Creating unifying policies that are based on the guidelines of Universal Design and differentiated instruction that still leave room for accommodation specific scenarios
 - Inserting clauses that pertain directly to interpersonal barriers and exclusion
40. Review practices and assigned decision-making authorities for accommodation on a regular basis, to ensure that they are up-to-date and reflective of the current student population and accessibility needs
 41. Ensure clear, accessible, and, where appropriate, flexible, appeals processes, which are cognizant of disability and consistent with principles of administrative law
 42. Schedule and commit to routine policy review and renewal in order to keep abreast of current practices and legal standards
 43. Recognize the breadth of learning environments students will access during their post-secondary education, and the range of setting in which accommodations may be applied
 44. Commit to the integration of academic accommodation policy and practice within the essential requirements of courses, programs and disciplines at all levels of postsecondary education
 45. Provide training to front line disability services staff and educators on the interaction between course, program or discipline essential requirements and academic accommodations
 46. Recognize the student's "community of support" as a learner, with respect to accessibility requirements, such that value is placed on the student's access to this support network in the individual learner pathway through education and into the workforce
 47. Conduct process improvement exercises to understand attitudinal and systemic barriers existing within policies and practices related to accessibility, accommodation and inclusion in education and employment for persons with disabilities
 48. Students who identify with a disability at any point of their PSE journey should be provided the opportunity to populate their co-

curricular record with their experiences relative to accessibility and inclusion that relate to prospective employment

49. Every professional program in PSE that has a practical component should have a disability adviser within the program available to students, who acts both as a program adviser, workplace/field adviser, and career transition adviser. They should screen for students with disabilities upon admission and provide appropriate supports. This person should be aware of the intersection among essential requirements, disability and accommodations and have experience with students with disabilities in PSE
50. Require PSE institutions to establish clear policies on accommodation for any work-integrated learning opportunity created through government funding. These policies must articulate students' legal right to request and receive reasonable accommodation. These policies must be communicated clearly to students
51. PSE institutions offer training to employers on making accommodations for students
52. Post-secondary institutions should work to prepare students to seize experiential opportunities before, during and after their program. Approaches may include:
 - Clearly articulate program requirements to prospective students.
 - Clearly identify the required components of experiential activities and outline accommodation supports.
 - Help students with disabilities find out about experiential and work-integrated learning opportunities.
 - Hold career events and tailored career development for PSE students with disabilities: mock interviews, career fair, workshops, mentoring.
 - Host training on disclosure, requesting accommodations, self-advocacy, searching for disability-friendly employers, managing one's disability in the workplace.

- Help students prepare for the transition to the work placement, get accommodations in place, do a test run of transportation, visit the site in advance, assign a transition support person.
 - Offer employment counselling tailored to students with disabilities in their first years after graduation. Be prepared to deal with common issues facing new graduates in the workplace.
 - Invite graduates with disabilities to return as mentors, trainers, and advisers to assist new students with disabilities.
53. Fieldwork acts in a number of ways as a barrier to participation for students with disabilities. Sensitivity and flexibility on the part of educators and fieldwork coordinators will be required as even students with the same disability may require different approaches and adjustments. Institutions and programs should encourage students to be more self-reflective and self-critical of their social practices while on fieldwork.
54. Students with disabilities should be included at all stages of technology selection, support, and use
55. Focus remains too much on process and accommodations and not on demonstrating effective outcomes. If a campus wide focus on self-determination and universal design for instruction was undertaken, the research indicates that it would likely increase achievement and effectiveness
56. Post-secondary institutions should foster the creation of peer support groups (many are now funded through university and college students' associations) and mentorship networks for students with disabilities on campus
57. Apply principles of inclusive design to disability services offices, in order to increase their interdisciplinary nature and improve their intake, assessment and accommodation processes

Recommendations for Community Agencies/Professional Societies

58. Encourage membership organizations to assist with developing policy exemplars, tools, and guidelines, to mitigate pressures on low policy-capacity institutions
59. Institutions should, individually and collectively, examine and reflect on policy implementation gaps, which may occur due to resistance
60. Formalize policy education responsibilities, and respond to policy feedback on any previous implementation design flaws
61. Conduct process improvement exercises to understand attitudinal and systemic barriers existing within policies and practices related to accessibility, accommodation and inclusion in education and employment for persons with disabilities
62. Employment agencies offer training to employers on making accommodations for students
63. Community agencies working with persons with disabilities should work to prepare students to seize experiential opportunities before, during and after their program. Approaches may include:
 - Clearly articulate program requirements to prospective students.
 - Clearly identify the required components of experiential activities and outline accommodation supports.
 - Help students with disabilities find out about experiential and work-integrated learning opportunities.
 - Hold career events and tailored career development for PSE students with disabilities: mock interviews, career fair, workshops, mentoring.
 - Host training on disclosure, requesting accommodations, self-advocacy, searching for disability-friendly employers, managing one's disability in the workplace.

- Help students prepare for the transition to the work placement, get accommodations in place, do a test run of transportation, visit the site in advance, assign a transition support person.
 - Offer employment counselling tailored to students with disabilities in their first years after graduation. Be prepared to deal with common issues facing new graduates in the workplace.
 - Invite graduates with disabilities to return as mentors, trainers, and advisers to assist new students with disabilities.
64. Encourage students with disabilities to engage with appropriate rehabilitation services in transition planning in secondary to postsecondary transition
65. Students with disabilities should be taught to use technology in ways that maximize their independence, productivity, and participation in all academic and employment activities in order to facilitate successful transitions between all academic and employment levels
66. Students with disabilities should be trained in self-management skills such as time management, organization, and strong study habits
67. Include disability awareness training for instructors, training for students and instructors on their respective rights and responsibilities, and guidelines for instructional best practices
68. Offer workshops that make navigating through the postsecondary educational system more manageable for students
69. Community disability services agencies should foster the creation of peer support groups and mentorship networks for students with disabilities in K-12 and postsecondary education, with a particular emphasis on transitional time points
70. Community disability support agencies should develop programming for parents and students around the interaction among accessibility requirements, essential requirements and accommodation in the academic setting
71. Create professional practice standards for disability support office staff, including requisite post-secondary education, legal knowledge, and experience with persons with disabilities

72. Greater support, training and consistent tools need to be developed to assist front-line staff to help with student mental health concerns

Transition recommendations

73. High school guidance counsellors are important advocates for the development and implementation of transition planning services for students with disabilities. Through direct service activities, school counsellors can help facilitate successful transitions for students with disabilities
74. Strengthen students' knowledge and skills around their rights in the postsecondary education and employment environments
75. Secondary schools and post-secondary institutions work together to educate students on the process for receiving services at the post-secondary education level
76. More coordinated campus visits between two-year and four-year students with disabilities would be beneficial as well as more coordination between staff and administration with regards to policies, and programs.

Recommendations for the use of technology in education

77. Use universal (inclusive) design principles when planning or implementing campus-wide IT infrastructure.
78. Ensure representation from campus-based disability service providers and accessibility experts in the implementation of campus-wide IT/technology in educational settings.
79. In faculty computer training, ensure that issues related to computer accessibility are on the agenda.
80. Facilitate opportunities for staff and faculty to learn about specialized accessible computer technologies, as well as the application of mainstream technologies in an accessible context.
81. Ensure the availability of a specialist in adaptive hardware and software on campus and promote the training of computer support personnel to enable them to service computers with adaptations.

82. When conducting formative/summative evaluations of courseware, web pages, and campus computing decisions in general, learners with disabilities should be included during pilot testing whenever possible.
83. Subject matter experts in the area of accessibility for individuals with disabilities need to be drawn into the courseware design process.
84. Authorware tools with built-in accessibility features should be selected when designing web-based and online learning applications.
85. Train educators who are managing online course content on the use of free web-based tools for use in evaluating web pages for accessibility.

Recommendations for further research

86. How do variations in governance practices, institutional types, and administrative arrangements influence policy formulation and policy outcomes, particularly with respect to policy gaps?
87. What strategies do advocacy communities use in order to promote improved institutional policy formation and implementation? What lessons can these groups learn by being effective in promoting improved institutional policy formation and implementation?
88. How can institutions be supported to capacity to absorb reforms and implement new policies, in the context of existing barriers to policy development and implementation?
89. To what extent are institutions knowingly substituting process for policy, or authorizing policymaking at a sub-governance level?
90. What is the existence and effectiveness of community support networks available to students with disabilities and their immediate support systems during their educational pathways, recognizing that such networks may not be limited to the education environment?
91. What are the sources of human error and algorithmic bias in policies and practices relevant to accessibility and inclusion in education and employment?
92. What are the diversity and inclusion indicators in experiential learning programs and outcomes for students with disabilities?

93. Admission practices in post-secondary institutions impact on the number of disabled students enrolled in post-secondary education. What is the differential impact of proposed and/or existing initiatives, policies, programs and legislation on persons with disabilities, based on their intersectional social identities?
94. Research is needed to identify best practices for implementing a self-determination focus in post-secondary educational settings
95. Research into improving social interactions using accommodations would be beneficial, as would programs that improve disability awareness. Further, research is needed to improve the efficacy of assistive technology

Immediate Next Steps

Building on the Landscape of Accessibility and Accommodation project, a focus for future research will be more thoroughly investigating students' interactions with the post-secondary environment, its services and accommodation supports, and the overall 'student experience' for university and college students with disabilities in a Canadian nationwide context. The student experience encompasses students' lived experiences and various points of 'access' within the academic environment, social environment, day-to-day living environment, co-curricular environment, and transitional spaces of post-secondary life. Students' identity within these environments, as well as peripheral variables which affect the student experience, such as financial status, housing, parental attitudes, cultural capital, and social networking, will also be explored. Moreover, students' 'experiences with the 'accommodation model,' 'feelings of inclusion,' 'feelings of exclusion,' as well as the accumulated effects and longevity of outcomes from having had these experiences will be assessed.

The student experience data will be collected using the following research tools and assessment procedures:

- Data analysis of The *Canadian University Survey Consortium (CUSC)* instrument, administered to 1st year, mid-year and graduating undergraduate students (2014-2016) at participating universities nationwide (to be completed by Fall 2018);

- Data analysis of The *Ontario College Student Satisfaction Survey (OCSSS)* 2016 instrument, administered to college students in Ontario (to be completed by Fall 2018);
- *NEADS Survey of Canadian Students with Disabilities in Post-secondary Education* (draft of survey currently in editing stage; data to be collected by Fall/Winter 2019);
- Focus Groups with current post-secondary students with disabilities (in Ethics approval; data to be collected by July 2018)

In addition, more thorough assessments examining university faculty and staff's experience with accessibility programs, policies, and the 'accommodation model' will be deployed in the form of quantitative surveys.

Ultimately, the objective of the future research outlined is to identify best practices and benchmarks for continued improvement of accessibility and accommodation for students with disabilities in Canadian post-secondary education.

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Appendices

The Research Team

Glossary

Canadian Survey on Disability (2012) - Data Analysis

Canadian Graduate and Professional Student Survey (2016) – Data Analysis

1. Comparison of students with disabilities to those without disabilities
2. Comparison of full-time students and part-time students with disabilities
3. Comparison of Science, Technology, Engineering, and Mathematics (STEM) students with disabilities to non-STEM students with disabilities
4. Snapshot of Aboriginal students with disabilities

Environmental Scan of Institutional Accessibility Policies – Full Report

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Glossary

Disability

Disability is "...an umbrella term, covering impairments, activity limitations, and participation restrictions. An impairment is a problem in body function or structure; an activity limitation is a difficulty encountered by an individual in executing a task or action; while a participation restriction is a problem experienced by an individual in involvement in life situations" (*World Health Organization*).

Disability is considered "...a complex phenomenon, reflecting the interaction between features of a person's body and features of the society in which he or she lives. Overcoming the difficulties faced by people with disabilities requires interventions to remove environmental and social barriers" (*World Health Organization*).

Disabilities are sometimes categorized as *visible* and *invisible* disabilities, the distinction drawn around physical/sensory disabilities as 'visible' and everything else as 'invisible'. We offer a different perspective on this matter – a visible disability is one where a person may be using an obvious navigational, mobility or technological aid (e.g., cane, walker, guide dog or other service animal, hearing aid, FM system, captionist or ASL interpreter), and an invisible disability is one where a person does not use such aids. It is also worth noting that in this context, the visibility of one's disability can be situational in nature, as someone may choose to use aids when necessary.

Disclosure

Disclosure is "an approach used to inform an [employer, prospective employer, or postsecondary institution] of a disability that needs to be addressed and accommodated" (*Ryerson University*: http://www.ryerson.ca/ccetutor/pdf/Disclosure_TipSheet.pdf).

Accommodation Need

"In human rights terms, **accommodation** is the word used to describe the duties of an employer, service provider or landlord to give equal access to people who are protected by [provincial] Human Rights Code," including persons with disabilities (*Human Rights Legal Support Centre*: <http://www.hrlsc.on.ca/en/how-guides-and-faqs/your-right-accommodation>).

Accommodation needs are the “tasks and functions that a person with a disability cannot fully perform without some type of accommodation” in the context of their course, program or discipline (*Work Without Limits: http://www.workwithoutlimits.org/providers/quality_employment_practices/accommodations*).

Disability Services Office

Disability Services Office (DSO) is one of a collection of terms (including Accessibility Services Office, Disability Support Services, Disability Support Centre, Centre for Students with Disabilities, etc.) used to refer to the office within a college or university responsible for providing academic accommodations to students with disabilities. Students typically register with the DSO through an intake process requiring disclosure of their disability and/or accommodation need, with appropriate documentation. DSOs are typically housed within the student life, student success or student services portfolios of their institutions.

Reasonable Accommodation

Reasonable accommodation is any change to a job, the work environment, or the way things are usually done that allows an individual with a disability to apply for a job, perform job functions, or enjoy equal access to benefits available to other individuals in the workplace (*United States Office of Personnel Management: OPM.gov*). Post-secondary institutions and employers are required by law to provide reasonable accommodation to qualified individuals with disabilities, unless doing so would impose an undue hardship (*United States Office of Personnel Management: OPM.gov*).

Undue Hardship

Undue hardship is “an action requiring significant difficulty or expense” when considered in light of a number of factors. These factors include the nature and cost of the accommodation in relation to the size, resources, nature, and structure of the [employer's or university's] operation. Undue hardship is determined on a case-by-case basis. (*ADA.gov*)

Essential Requirement

"Essential requirements of a course or program refer to the knowledge and skills that must be acquired or demonstrated in order for a student to successfully meet the learning objectives of that course or program" (Rose, 2009).

Alternative Format

Alternative formats are other ways of publishing information aside from standard print that still provide the same information, just presented differently (Rowlett & Rowlett, 2009). Some of these formats may be used by everyone, while others are designed to address the specific needs of a user.

Print Disability

Standard printed publications are not accessible to people with visual impairments or who are blind. Many other categories of readers are not able to use printed books, newspapers and magazines, including those with dyslexia and other types of learning disability, as well as individuals with motor disabilities or manual dexterity limitations who cannot hold or turn pages in a book. Collectively, these groups of individuals are often referred to as persons with "print disabilities."

Academic Employment

Academic employment is used in the context of this report to refer to situations or circumstances when a graduate student is hired as a teaching assistant, research assistant or graduate assistant during the time of their studies.

Universal Design

Universal design is "the design and composition of an environment so that it can be accessed, understood and used to the greatest extent possible by all people regardless of their age, size, ability or disability. An environment (or any building, product, or service in that environment) should be designed to meet the needs of all people who wish to use it. This is not a special requirement, for the benefit of only a minority of the population. It is a fundamental condition of good design. If an environment is accessible, usable, convenient and a pleasure to use, everyone benefits." By considering the diverse needs and abilities of all throughout the design process, universal design creates products, services and environments that meet peoples' need. These principles also apply to learning environments (www.universaldesign.ie).

Professional Development

Professional development is a term that may be used in reference to a “wide variety of specialized training, formal education, or advanced professional learning intended to help [students], administrators, teachers, and other educators improve their professional knowledge, competence, skill, and effectiveness” (www.edglossary.org).

Online Learning

Online learning is “a way of studying for an internationally recognized qualification without needing to attend classes on campus. It [can be] aimed at those who wish to study for a postgraduate qualification alongside work or other commitments” (<http://www.ed.ac.uk/online-learning/about>).

Creativity

Creativity in this sense means being willing to experiment with different approaches, sometimes unusual requests, to find the best solution for all involved.