Examining the Impact of Universal Design for Learning (UDL) on Minimizing Academic Accommodations in Post-secondary: A Literature Review

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Across the globe, Universal Design for Learning (UDL) has emerged as the leading learning framework to help address the urgent need for more inclusive teaching practices and design in education (Lombardi, Vukovic & Sala-Bars, 2015). In the USA, UDL has been incorporated into the federal Higher Education Opportunity Act and endorsed in the Every Student Succeed Act. In Canada, it is mentioned in most provincial Ministry of Education and post- secondary institution websites. Proponents of UDL argue against the traditional approach to learning, and suggest that UDL principles and guidelines address a wide spectrum of learning and helps not just those with learning disabilities. Originally UDL was created to address the needs of students with disabilities however educators quickly realized that many students, not just those with disabilities, are precluded from learning due to elements of course design, teaching and assessment (Rowe, 2006). Research suggests that proactively minimizing barriers to materials, learning activities and assessments through a UDL framework will maximize the potential of all learners (Coulliard & Higbee, 2018; Embry, Parker, McGuire & Scott, 2005; Fovet & Mole, 2013). Among post-secondary disability offices, it has been discussed that in removing barriers, implementing UDL has the potential to decrease the need for individual academic accommodations, which retroactively are put in place to level the playing field for students with disabilities. This literature review seeks to understand the evidence-based research behind these held beliefs. Specifically, this literature review seeks to answer the following questions:

1. Is there a link between UDL and academic accommodations? If there is a link between the two, what does it look like?

Sub Questions:

I. What principles of UDL exist that might minimize academic accommodations?

II. Should post-secondary institutions promote UDL over academic accommodations?

2. What is the economic impact of UDL on a post-secondary institute (both potential economic costs and benefits)?

3. What are the counterarguments, challenges, and contradictions of UDL and its implementation?

History and Understanding the terms Universal Design of Instruction (UDI), Universal Instructional Design (UID), and Universal Design for Learning (UDL)

The literature shows various descriptions of designing universally for learning and each term has its accompanying history. One of the challenges in conducting a literature review is that these terms are often used interchangeably and one standard definition has yet to be established. To research the applications of universal design and learning environments, its historical underpinnings and pedagogy must first be understood.

Universal design for learning stems from early changes in architectural design in which physical spaces were studied prior to construction and changes were made that reduced the need for additional accommodations and promoted universal access for all (Connell et al, 1997). Classic examples of these changes are curb cuts in sidewalks and ramps in front of buildings that not only benefit wheelchair users but baby strollers, rolling luggage and a host of other users. The term universal refers to the use of those who interact with the physical space that is designed deliberately to encourage access for all and not as an afterthought in response to an accommodation requirement (Orkwis & McLane, 1998). In 1997, the founder of the Center for Universal Design, an architect with a disability Ron Mace and other advocates of Universal Design published seven principles to assist with the construction of accessible physical environments (Connell et al, 1997):

Principle One: Equitable Use

The design is useful and marketable to people with diverse abilities.

Principle Two: Flexibility in Use

The design accommodates a wide range of individual preferences and abilities.

Principle Three: Simple and Intuitive Use

Use of the design is easy to understand, regardless of the user's experience, knowledge, language skills, or current concentration level.

Principle Four: Perceptible Information

The design communicates necessary information effectively to the user, regardless of ambient conditions or the user's sensory abilities.

Principle Five: Tolerance for Error

The design minimizes hazards and the adverse consequences of accidental or unintended actions.

Principle Six: Low Physical Effort

The design can be used efficiently and comfortably and with a minimum of fatigue.

Principle Seven: Size and Space for Approach and Use

Appropriate size and space is provided for approach, reach, manipulation, and use regardless of user's body size, posture, or mobility.

The term, Universal Design of Instruction (UDI), adapted these seven principles to show examples of how the original principles designed for physical environments could be applied to educational environments (Goff & Higbee, 2008; Schelly, Davies & Spooner, 2011; Burgstahler, 2015).

Principle One: Equitable use.

The design is useful and marketable to people with diverse abilities. Example: A professor's website is designed so that it is accessible to everyone, including students who are blind and using text-to-speech software.

Principle Two: Flexibility in use.

The design accommodates a wide range of individual preferences and abilities. Example: A museum, visited as a field trip for a course, allows each student to choose to read or listen to a description of the contents of display cases.

Principle Three: Simple and intuitive use.

Use of the design is easy to understand, regardless of the user's experience, knowledge, language skills, or current concentration level. Example: Control buttons on science equipment are labeled with text and symbols that are simple and intuitive to understand.

Principle Four: Perceptible information.

The design communicates necessary information effectively to the user, regardless of ambient conditions or the user's sensory abilities. Example: A video presentation projected in a course includes captions.

Principle Five: Tolerance for error.

The design minimizes hazards and the adverse consequences of accidental or unintended actions. Example: Educational software provides guidance and background information when the student makes an inappropriate response.

Principle Six: Low physical effort.

The design can be used efficiently, comfortably, and with a minimum of fatigue. Example: Doors to a lecture hall open automatically for people with a wide variety of physical characteristics.

Principle Seven: Size and space for approach and use.

Appropriate size and space is provided for approach, reach, manipulation, and use regardless of the user's body size, posture, or mobility. Example: A flexible science lab work area has adequate workspace for students who are left- or right-handed and for those who need to work from a standing or seated position.

Shaw, Scott and McGuire (2001) with the Center on Postsecondary Education and Disability, adapted the original seven principles of Universal Design and added an additional two to increase postsecondary education access termed Universal Instruction for Design (UID).

Principle Eight: Community of learners

Offering a number of environments for learning such as discussion boards, chat rooms and use of social media.

Principle Nine: Instructional climate

Creating a classroom culture in which students are able to communicate their needs and instructors are responsive and non-judgmental (Roberts, Park, Brown and Cook, 2001; Orr & Bachman Hammig, 2009; Scott, McGuire & Shaw, 2003).

Universal Instruction for Design principles reflected the guidelines of Chickering and Gamson’s (1987) good teaching practices and emphasized instructional pedagogy (Rao, Ok, & Bryant, 2014, p. 154)).

a. Creating welcoming classrooms
b. Determining essential components of a course
c. Communicating clear expectations
d. Providing timely and constructive feedback
e. Exploring use of natural supports for learning, including technology

f. Designing teaching methods that consider diverse learning styles, abilities, ways of knowing, and previous experience and background knowledge
g. Creating multiple ways for students to demonstrate their knowledge
h. Promoting interaction among and between faculty and students

In the 1980s, early researchers Meyer, Rose and Garden founded the Center for Applied Special Technology (CAST). The Center explored technological applications as alternatives to print materials that dominated teaching environments at that time (Meyer, Rose & Garden, 2014; Jimenez, Graf & Rose, 2007). In the 1990s, CAST shifted focus to include curriculum design (Orkwis & McLane, 1998), and in 2008, it condensed the nine principles into three and issued the guidelines for Universal Design for Learning 1.0.

Principle One: Multiple means of representation

Providing numerous ways for students to gain knowledge

Principle Two: Multiple means of action and expression

Providing a variety of ways for students to show what they have learned

Principle Three: Multiple means of engagement and interaction

Providing a multitude of methods for students to interact requiring a cognizance of diversity and culture (Orr &Bachman Hammig, 2009; Dell, Dell & Blackwell, 2015; Rao, Ok & Bryant, 2014).

Under the umbrella of the three principles, there are nine guidelines and 31 checkpoints noted in version 2.2 (CAST, 2018).

Unlike the UID and UDI frameworks, the Center for Special Technology maintains that UDL is based on neuroscience and how learning is acquired based on “cognitive research on learning networks” (Schelly, Davies and Spooner, 2011, pg. 18).

Brain functions and characteristics fall along a continuum of systematic variability. Thus, differences are incremental, distributed, and dynamic rather than stable and categorical within an individual. This contradicts the idea of bright lines between an idea of normalcy and deviation from normalcy and challenges the practice of diagnosing and labeling individuals. From a practical viewpoint, it means that a UDL curriculum designer or teacher can plan for expected variability across learners and provide curriculum that has corresponding flexibility (Meyer, Rose & Gordon, 2014, pg. 6).

Each principle is connected to a learning network (Meyer, Rose & Gordon, 2014):

Principle One

Multiple means of representation to the recognition network (the 'what'' of learning, how students categorize and recognize information)

Principle Two

Multiple means of action and expression to the strategic network (the 'how' of learning, relating to the completion of tasks)

Principle Three

Engagement to the affective network (the 'why' of learning, how students get and stay engaged and motivated)

UDL creates an environment for learners to acquire, engage and demonstrate their knowledge that is learner centered rather than teacher centered. When designing courses in a way that is universally designed for all students those with and without a disability, learning is accessible for all. Historically there has been a focused effort on viewing disability through a social model lens, that is that it is the environment itself that creates disability from the medical model in which disability is a deficit and in need of remediation.

> Today, the public mindset is beginning to shift away from a medical model of disability towards a recognition that context and self-awareness as a learner both play a huge role in whether any given condition is disabling or not (Myer, Rose & Gordon, 2014, pg. 3).

Pedagogy & Universal Design for Learning

The role of pedagogy is intertwined with UDL. The following studies in designing curriculum that is universally accessible challenges the medical paradigm of disability (a paradigm that focuses on remediation of individual difference) by investigating changes to the educational environment that facilitate learning. To implement UDL successfully, the literature highlights the importance of teaching pedagogy and instructor's paradigm. Many postsecondary faculty are hired based on their areas of specialization, industry knowledge and expertise and thus "many university instructors emphasize content over pedagogy" (Ginsberg & Schulte, 2008, pg. 85).

Ginsberg and Schulte (2008) propose two instructional styles that mirror personal paradigms: traditional and interactional. Traditional instruction reflects a medical paradigm, the belief that disability is a deficit that needs to be fixed in order for learning to occur. With the belief that disability lies within the individual itself, instructors may seek to look for evidence of defects "in need of remediation rather than seeing themselves as an educator seeking an opportunity for learning" (Ginsberg & Schulte, 2008, pg. 85).

Interactional teaching reflects a social constructionist paradigm with the belief that it is the environment itself that creates disability; therefore, any changes to the environment whether physical or educational, will not only establish more conditions for learning for students with disabilities but for all students.

Ginsberg and Schulte posit that incorporating UDL in post-secondary classrooms does not address the underlying belief systems of traditional instructors that rely heavily on academic

accommodations and systems outside of the classroom rather than create opportunities for learning through a social constructionist lens and foster student centered learning (2008).

In conclusion, the framework that UDL, UID and UDI offer to postsecondary instructors is not merely in implementing the principles and checking off the boxes to imply good instruction; rather, accessible education begins with the mindset of the instructor who fundamentally *believes* in proactively designing and delivering inclusive education for all learners.

Is there a link between UDL and academic accommodations? If there is a link between the two, what does it look like?

Academic Accommodations Background

Colleges and universities across Canada have seen a significant increase in the numbers of students with disabilities. Statistics from Ontario suggest that there has been a 66% overall increase of students registering with disability offices at university campuses across the province (McCloy & DeClou, 2013) and at Bow Valley College there has been a 55% increase from 2014-2018 in students registered with Accessibility Services. With 9% of Canadian undergraduate students reporting a disability (Orr & Bachman Hammig, 2004), post-secondary institutions have a "duty to accommodate" to fulfil their legislative requirement to provide equal access and remove barriers to the learning environment (Alberta Human Rights Commission, n.d.).

Students with disabilities are entitled to equal access to a post-secondary education and may receive academic accommodations to alleviate barriers. Alberta Human Rights describes accommodations as, "making adjustments or alternative arrangements in the educational environment to ensure it does not have a discriminatory effect on a student because of the student's disabilities (Alberta Human Rights Commission, n.d.)." Ketterlin-Geller and Johnstone identified accommodations such as changes to the setting in which instruction is presented or assessment

tasks are given, the amount of time allocated to a student to learn a concept or complete a task, the format of the information that is presented, the method through which the student responds to questions, or the materials or equipment that support the student in his or her ability to interact with the material (2006, p. 164).

Alberta Human Rights interpretive bulletin states that "Today the leading method for ensuring that persons with disabilities have equal access to post-secondary education is through a process called accommodation, (2010, p.2)" However, Ketterlin- Geller & Johnstone (2006) point out that accommodations are an unresolved issue in post-secondary education as evidenced by court cases, inconsistent decision making about accommodations as well as the stigma felt by students accessing accommodations. Students are subjected to a number of hurdles to qualify for accommodations, such as medical and bureaucratic processes that require them to declare their disability to receive help (Womack, 2017). The accommodation request-based system comes with a number of challenges including a complex process for acquiring accommodations, delays in accessing accommodations, faculty misunderstandings (Lightfoot, Janemi, & Rudman, 2018) and lack of willingness to access accommodations due to stigma (Black, Weinberg & Brodwin, 2015; Lightfoot et al., 2018). Edyburn (2010) suggests that staying in an accommodation phase rather then moving to accessibility maintains inequality for three reasons: there may be a delay (e.g. time needed for alternate format), it may require a special effort to obtain (e.g. call ahead to schedule or request) and it may require going to a special location (e.g. writing exam in separate area for extra time).

Alternatively, educators and disability service providers propose that a UDL approach to education may increase access for all students (Ginsberg & Shulte, 2008; Lombardi et al., 2015; Edyburn, 2010) and minimize the need for individual academic accommodations for students with

disabilities (Black et al., 2015; Edyburn, 2010; Kettlerlin & Geller, 2018; Lightfoot et al., 2018; Orr & Hammig, 2009). Since UDL addresses diversity and natural variability of students in an educational setting from the outset, it is presumed that this proactive approach to inclusivity will decrease the need for a reactive approach which is solely relying on individual academic accommodations to create accessibility (Fovet & Mole, 2013). Furthermore, with growing numbers of older students, first-generation college students, international students and students whose first language is not English, there is a desire for an education model that addresses the complex needs of the diverse majority (Government of Canada, 2012; McGuire & Scott, 2006). Educators have begun to consider that these principles can be expanded to include additional populations, such as the LGBTQ+ community, by considering intersecting and interdependent identities (Couillard & Higbee, 2018).

What principles of UDL exist that might minimize academic accommodations?

It is acknowledged within the literature that the implementation of UDL should reduce the need for formal accommodations (Al-Azawei, Serenelli & Lundqvist, 2016; Flagg-Williams & Bokhorst-Heng, 2016) given that UDL builds many accommodations into the design of the curriculum and instructional materials (Black et al., 2015). However, there exists a dearth of empirical academic research that actually examines the impact of UDL implementation on minimizing academic accommodations in the post-secondary environment. Research indicates UDL is conducive to learning among students with disabilities (Black et al., 2015) but there appears to be little substantial link in the literature as of yet. It is the researchers opinion that this not due to the absence of a link but rather an absence of research. Two research studies that examine post-secondary disability services providers' perceptions of UDL (Embry et al. 2005; Fovet & Mole, 2013). Within these qualitative studies, themes were discovered around

participant's perception that the implementation of UDL would minimize the need for formal individualized academic accommodations (Embry et al. 2005; Fovet & Mole, 2013). Embry et al. conducted 16 focus groups of disability service providers and found participants felt that the implementation of UDL would lead to positive changes in their day-to- day responsibilities including the provision of academic accommodations. Participants also believed UDL was an effective method for accommodating students and would lead to the reduction of accommodations (2005). Participants in another qualitative study in a Canadian university connected the implementation of UDL to alleviating staffing resources related to the management of disability issues however, there was no direct mention of it reducing the need for accommodations (Fovet & Mole, 2013).

The researchers found a single study directly linking UDL with the reduction of academic accommodations. Kumar and Wideman (2014) conducted a small qualitative case study in an Ontario University to study the impact of UDL implementation on a 50 student first-year undergraduate course. Disability services offices reported a decrease in need for accommodations in the case study course as the content was available in multiple formats, study guides reduced the need for a learning strategist, note takers were not required as students notes were available on the course site, videos were captioned, and the choice of styles of assignments and deadlines negated the need for advocacy. One student still used accommodations, even though extended time was given to everyone, due to the need for a distraction-reduced environment.

There are a number of principles in UDL that can contribute to the reduction of individual accommodations for students with disabilities. **Appendix A** represents the most common academic accommodations at Bow Valley College and the principles and teaching practices associated with UDL that have the potential to help minimize the need for individual academic

accommodations.

Should post-secondary institutions promote UDL over academic accommodations?

The above section indicates that there is an appetite among educators and post-secondary disability service providers to implement UDL to minimize accommodation needs but there does not appear a consensus to promote one over the other. As Womack (2017) states,

> Planning alone, as with universal design, generalizes about people and can't contain all individual users. Reacting alone, as with individual accommodations assumes a fictional norm and doesn't integrate difference into pedagogy. Over relying on either procures the same results: students are excluded (p. 521).

There is a theme in the literature that the accommodation system is not an ideal system and may even conflict with institutional objectives around sustainability and resource efficacy. Post-secondary personnel contend that there is a tangible synchronicity between universal design promotion and the desire for sustainability benchmarking in culture, practice and service provision (Fovet & Mole, 2013).

To answer the question about promoting UDL over accommodations, we the researchers contend that the research needs to be examined on the efficacy of UDL as a model used for all students, regardless of disability or impact on accommodations. One cannot fully understand if UDL should be promoted unless the scope of the research is extended to studies that look at entire populations of post-secondary students and its impact.

The majority of research on assessing UDL principles has focused on perceptions of students and faculty, primarily through qualitative studies, case studies or surveys. These studies show that students are generally satisfied and have positive feelings towards courses where a UDL model has been implemented (Engleman & Schmidt, 2007; Schelly et al., 2011). Students report

feeling that tenants of UDL contributed to their success in courses that purposefully employed UDL principles (Dean, Lee-Post & Hapke, 2017; Kumar & Wideman, 2014), increased their attention (Flagg-Williams & Bokhorst-Heng, 2016), confidence (He, 2014) and students reported feeling less stressed (Kumar & Wideman, 2014) and more positively engaged and interested in the course (Kumar & Wideman, 2014; Smith, 2012). In one study employing a UDL approach to technology-assisted instructor voice amplification in a lecture hall, an outcome was a greater awareness among the student body of the importance of inclusion (Flagg-Williams & Bokhorst-Heng, 2016). The literature also points to teacher satisfaction and willingness to use UDL once they have implemented elements of UDL in their classrooms (Pace & Shwartz, 2008). Instructors perceive that principles of UDL has contributed to the success or completion of assignments in courses employing UDL principles (Pace & Shwartz, 2008; Parker, Robinson & Hannafin, 2008).

Evident in the research body is a lack of robust studies that examine the impacts of UDL on learner levels of performance such as grades, GPA or retention. The literature focuses largely on subjective assessment to impacts to learning rather than objective measures such as grades increasing, test scores increasing, retention rates increasing/decreasing. One of the challenges that occurred when examining the literature was the diverse ways in which researchers are implementing UDL principles and the ways in which they are evaluating the outcomes. While some researchers have incorporated UDL principles across the three areas of multiple mean of engagement, representation, and action & expression other studies are drawing conclusions after applying a single specific software application in a universal manner. Further discussed in challenges of UDL, Edyburn (2010) has encouraged future researchers to define how to measure outcomes and define key variables that impact institutional achievement.

What is the economic impact of UDL on a post-secondary institute (both potential economic

costs and benefits)

Institutions cannot disregard the financial strain the traditional individual accommodation process has year over year. Not only do institutions have to increase staff capacity in Accessibility offices to have accommodations initially set up among the growing numbers of students with disabilities but also financial impact is seen once the accommodations are in place. Hiring of scribes, readers, note takers come with a cost as well as resources to staff test rooms for those needing extra time, distraction reduced environments, access to music during exams, etc. A thorough examination of the financial implication of continuing with a traditional accommodation model over incorporating UDL principles has not been examined in the research. Perception among disability service providers is that moving to UDL would allow them more time to provide non-mandated services such as data collection and changes in the amount of time spent documenting academic accommodations (Embry et al., 2005). Subjects have identified the traditional accommodation process as highly costly and an inefficient use of resources as it requires retrofitting, repeated each semester, for each course, for each individual making a request (Fovet & Mole, 2013) and touted this as a consideration for UDL. UDL has the potential to lower costs by lessening the need for academic accommodations. For example, an instructor who makes notes accessible and in different modalities may eliminate the need for hiring a note taker for a student with a disability (Dallas, Upton & Sprong, 2014).

Economic costs to implementing UDL have not been outright analyzed in the literature but one can extrapolate from the suggestions on implementing UDL across an institution that there is a cost associated with a collective implementation of UDL. Researchers point to the need for faculty training (Black et al., 2015; Dallas et. al., 2014; Pace & Schwartz, 2008), creating faculty discussion forums (Ketterlin-Geller & Johnstone, 2006), ensuring and upgrading technology,

curriculum design and redesign, and policy creation (Pace & Schwartz, 2008) if UDL is to be implemented successfully. These suggestions indicate there would be an initial economic cost to committing to UDL across an institution. The economic costs may be initially higher than the ongoing costs once UDL becomes a part of an intuition's mandate, however, there exists no analysis on the costs of implementing and maintaining a UDL paradigm versus solely continuing with the accommodation approach.

What are the counter arguments, challenges, and contradictions of UDL and its implementation?

Challenges of UDL implementation

Unlike those who work in the K-12 system, post-secondary instructors have not been specifically trained to work with students with diverse needs. Ginsberg & Shulte (2008) explain that they often have little support or knowledge of how to effectively support diverse needs and may hold conventional pedological views that make the implementation of UDL difficult. While non-discriminatory in intent, accommodations are rarely based on pedagogical decisions by faculty concerning the best way to promote student learning but the absence of an understanding of pedagogy may prevent faculty from being open to UDL (Gingsberg & Shulte, 2008) over an accommodation approach. Furthermore, faculty may be resistant to change especially in using a model which is still in its relative infancy and whose impact on learning performance has not been adequately measured (Edyburn, 2010).

In one study, faculty indicated concerns about increase in workload with the implementation of UDL (Fovet & Mole, 2013). Although this may be remediated by an encouragement of a gradual, sustainable change rather than a complete overhaul of individual courses (Fovet & Mole, 2013) this may be a challenge to adoption. Training needs where faculty may not be

confident in their understanding of UDL or have a complete absence of knowledge on the subject remains a barrier (Dallas & Upton, 2014). Given the makeup of most post-secondary institutions, training non- tenure track, adjunct, part-time and teaching assistants may be a struggle given the transient nature of those positions (Embry et al., 2005).

Technology requirements may be a challenge in implementing UDL for post-secondary institutions who have not already or continually invest in technology. It is argued that UDL cannot be achieved without the necessary technology as it is technology that provides an array of flexibility for students (Edyburn, 2010). Furthermore, instructors can become discouraged if the technology support services and seamlessness is not available when they need to implement technology in a universal way There needs to be an investment in technology to ensure that both instructors and students have the infrastructure to support the array of technology that strengthens learning.

Counterarguments & Contradictions to UDL Implementation

There appears to be an absence of counterarguments to implementing UDL however several academics have spoken to the need to clarify how to effectively measure UDL's impact. Scholars contend that although UDL's value is undeniable there has yet to be a standardized way to assess Universal Design practices across the models (Lombardi et al., 2015). The ways in which researchers are connecting their interventions to the principles greatly vary and therefore the analysis and interpretation of the effectiveness of UDL poses a challenge (Rao, Ok & Bryant, 2014). As Edyburn (2010) states,

> CAST's UDL framework does not feature a component associated with the measurement of student learning outcomes. All three of the "multiple means" statements by CAST focus on providing multiple concurrent interventions. As a result, within existing

> conceptualizations of UDL, there is no clear way to measure claims that UDL is effective for enhancing the academic performance of diverse students. This is a significant shortcoming for anyone trying to operationalize, implement and evaluate a UDL program (p.39).

It must be demonstrated that the use of UDL principles in post-secondary leads to improved student outcomes such as grades and persistence (Davies et al., 2013) now that we have a strong body of research that looks at faculty and student perceptions of UDL.

Conclusion

This literature review sought to understand the link between academic accommodations and the use of UDL in the post-secondary learning environment. As of today, the majority of literature that makes a connection between UDL and accommodations, centers on academics perceptions that it has the potential to reduce accommodations as well studies that examine disability services perception of the reduction. We did find one small case study that directly linked the use of UDL to the reduction of academic accommodations. It is the opinion of the researchers, that the body of UDL research suggests that it is a viable approach to teaching that is promising in its effectiveness for all learners, not just those in need of academic accommodations. There is plenty of opportunity for future studies to measure the impact on academic accommodations when a UDL approach is used in post-secondary classes. These studies could focus on applying UDL guidelines or specific checkpoints of the model to investigate its efficacy on reducing academic accommodations. Although the use of UDL won't eradicate the need for accommodations, colleges and universities across Canada are in a unique position to decrease overall expenditures while providing a superior learning experience to the diverse student body.

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Appendix A

Alternatives to Accommodations: Universal Design for Learning

Accommodation	Inequality	UDL Options
Extra time on test	Requires special effort to obtain	Extended time for all- ensure extended time fits into allotted class time
	Requires special location	Provide diverse options for assessment (e.g essay, test, oral presentation, poster presentation)
	May be a delay	
		Describe assessment criteria in a variety of ways
		Minimize construct-irrelevant factors
		Ensure course content is broken down
		Class members control the weighting of final exam
Exemption for oral presentations	Requires special effort to obtain	Options for expressing
		Diverse & multiple options for assessment
		Options of recorded video oral presentations
Alternate assignments or test modalities	Requires special effort to obtain	Provide diverse options for assessment in course outline
	May be a delay	Create unique assignments throughout course
		Create understanding of assignments by providing detailed rubric
		Samples of completed assignments (use different modalities)
		Built-in options for expression on tests (written response, multiple choice, oral etc..)
Note taker/academic aide in class	Requires special effort to obtain	Rotating peer note taker- access for all learners

Accommodation	Inequality	UDL Options
	May be a delay	Access to all materials ahead of time Various methods of teaching- not just lecture based Summarize key concepts verbally and other modalities Provide guided notes & graphic organizer Before-lecture homework come to class armed with knowledge Clear and concise talking points (no tangents)
Recording Lectures	Requires special effort to obtain	Allow all students to record lectures Asynchronous and synchronous options Instructor records lectures and posts on D2L Give before-lecture homework come to class armed with knowledge
Extension on Assignments	Requires special effort to obtain	Flexible deadlines for all Individuals are in control of determining their deadlines at the beginning of term Class participates in determining class deadlines at the beginning of term Provide diverse options for assessments Ensure difficult content is broken down and understandable Student and/or class control over topics for assignments
Access to class	Requires special effort to	Prior access to materials for all students

Accommodation	Inequality	UDL Options
notes, PP and materials ahead of time	obtain	Differing ways of presenting class content and materials Before-lecture homework come to class armed with knowledge
Exempt from group projects	Requires special effort to obtain	Allow for options in assignments for students to work independently or in groups If group projects is a bona fide academic requirement, allow independence in picking size and makeup of group
Alternate format for class handouts and materials	Requires special effort to obtain May be a delay	Ensure all materials are compatible with text to speech Ensure all material is available in timely manner electronically on Learning Management System
Text to Speech software for tests	Requires special effort to obtain Requires special location	Question if it lowers the academic standard if all learners have access to listening to the exam versus reading it. If not, allow all learners access to Text to Speech software for assessments. Book all exams in computer labs or allow loaner laptops to allow for text to speech options Suggest/allow text to speech application to listen to course material
Distraction Reduced Test Environment	Requires special effort to obtain Requires special location	Provide diverse options for assessment in course outline as environment may not be required if assignment is chosen Provide ear plugs as an option for classroom tests Allow noise cancelling headphones for classroom tests Allow pre-approved music for classroom tests Allow dividers for those wanting less visual distractions

Accommodation	Inequality	UDL Options
		Conversation with class about expectation of leaving the room when completed (option sit quietly until the end)