

Universal Design for Learning Today: Measuring Mohawk College's Implementation

Research Project Report – 2024

Darla Benton Kearney

Universal Design for Learning (UDL) is a curriculum design, development and delivery framework used to create inclusive, equitable and accessible learning environments. Research identifies UDL as an effective approach for inclusive teaching and learning in all educational settings and delivery modalities (Benton Kearney, 2023). UDL can:

- Limit, or proactively remove, learning barriers to improve learning for all students.
- Reduce the need to arrange individual learning accommodations.
- Offer students an opportunity to fully demonstrate their knowledge (Benton Kearney, 2023).
- Support Mohawk College's [Equity, Diversity and Inclusion Action Plan](#), as well as the proposed [Accessibility Standards for Teaching and Learning at College and University](#) (part of the Accessibility for Ontarians with Disabilities Act) (Kovac, 2024).

In 2018, Mohawk College completed the [Universal Design for Learning for Technology-enabled Post-secondary Courses at Mohawk College research project \(PDF\)](#). Using a grant provided by eCampusOntario, the project obtained context specific data to support the strategic direction of UDL implementation at Mohawk College, as well as the development of [Mohawk College's UDL Standard](#) and the [UDL Course Assessment](#) (Benton Kearney, 2018). Given the growth in UDL implementation over the past several years and recent rapid changes to teaching and learning in higher education, updated data was required to support new UDL implementation efforts and a new Digital Learning Strategy [Digital Learning Strategy](#) (*Digital Learning Strategy*). Moreover, additional data may assist Mohawk College to further leverage UDL to reach Mohawk College's equity, diversity and inclusion (EDI) targets as identified in [Mohawk College's Equity, Diversity and Inclusion \(EDI\) Action Plan](#) (*Equity, Diversity and Inclusion Action Plan*, 2018). The Academic EDI Committee has identified the need for current and context specific UDL research to support their goals.

Purpose

The goals of the *UDL Today* research study were to:

1. Review Mohawk College's UDL implementation to date, from both educator and learner perspectives.
2. Obtain data to inform a strategic direction for Mohawk College's UDL implementation advancement.
3. Establish recommendations and priorities for ongoing UDL implementation, with additional focus on the needs of learners from equity-deserving groups.

As UDL implementation shifted from a focus on disability related accessibility to more expansive support of Mohawk College's equity, diversity and inclusion (including accessibility) goals, elements of the *UDL Today* research study were designed to capture the potential learning needs and preferences of equity-deserving groups, including student populations who self-identify as:

- Indigenous
- International
- Having a disability(ies)
- First-generation post-secondary student

Methodology

The *UDL Today* research project employed a mixed method approach to gain quantitative and qualitative data from Mohawk College students and educators. The study included:

- Brief literature review
- Learning management system audit
- Faculty survey – delivered one time in multiple semesters
- Student survey – delivered one time in multiple semesters

In addition to informing Mohawk College's strategic UDL implementation planning, it was hoped that the research study would yield applicable information for the higher education sector. Research Ethics Board approval was sought and granted in support of future data dissemination.

Literature Review

The *UDL Today* literature review aimed to:

- Review current UDL in higher education research to identify research needs and gaps.
- Determine current UDL implementation practices within higher education.
- Identify key recommendations for UDL inclusion as they pertain to Mohawk College and its strategic priorities.

The *UDL Today* research project was informed by the completed Literature Review (see Appendix A) and has applied it to the study recommendations.

Learning Management System (LMS) Audit

The primary goal of performing an audit was to determine effective use of the LMS to reach institutional UDL and EDI goals. The audit was based on the principles that Mohawk College's LMS use should:

- Be purposeful, intentional, and learner-centered regarding implementation and use of technology, with special attention paid to Mohawk College's primary LMS (MyCanvas) as it is central to all teaching and learning modalities.
- Leverage MyCanvas as a platform to support UDL targets regarding more inclusive, equitable and accessible education.
- Support educators to use MyCanvas tools for course/program learning goals and outcomes, as well as enhance teaching and learning.
- Teach students how to use MyCanvas effectively to meet their learning needs and preferences.

In order to reach the targets listed above, we needed to know what our LMS is capable of to ensure recommendations are purposeful, relevant and possible. The LMS Audit (see Appendix B) informed the UDL implementation recommendations made below and are aligned with the capabilities of Mohawk College's LMS, Canvas.

Faculty and Student Surveys

The *UDL Today* project delivered two surveys, each semester, for three semesters. Surveys were administered by Mohawk's Institutional Research department with the data digitally stored and protected on a secure server. Both the educator and student surveys were designed to be administered the week after break week in each semester and stay open for two weeks. Each survey had a unique administration link to ensure that the research team could review results by semester. All surveys were anonymous and educators were unaware of which students opted to participate in the research study.

The educator and student surveys included information about the study, risks, confidentiality, and administration protocol prior to the agreement to participate. The research methodology for *UDL Today*, including the surveys and administration protocol, were approved by Mohawk College's Research Ethics Board.

As the *UDL Today* research study was hoping to glean data from a variety of perspectives and lived experiences, the surveys were open to all educators teaching a Mohawk College course and all students currently taking a Mohawk College course during the semester the surveys were being administered. Educators and students not actively participating in course work were excluded as they would not be able to determine UDL implementation elements within current course delivery. Exclusion

occurred prior to the commencement of the surveys, when students and educators were asked to confirm that they were taking/teaching at least one course in the semester the survey was being administered.

Given the open approach to the survey tools, we were unable to anticipate how many educators and/or student participants would be involved in the study, but as large a sample size as possible was sought over three semesters.

Both the educator and student surveys included general demographic and program information questions. The bulk of the questions asked participants to identify UDL elements and how they are used within Mohawk College. Consultation with an Indigenous Counsellor, in Mohawk College's Indigenous Student Services, was undertaken to support the development of survey tools that would encourage participants who identified as Indigenous to share their experiences and thoughts in a way that is aligned with Indigenous ways of knowing and being. The consultation led to the majority of survey questions, for both groups of participants, to include open-ended questions and fields to foster additional comments and storytelling.

Over the past few years, UDL implementation has grown to better support Mohawk College's EDI goals. The *UDL Today* research study worked to capture the potential learning needs and preferences of equity-deserving and sovereignty-seeking groups. Student populations who self-identify as: Indigenous, International, having a disability(ies) and/or first generation were invited to indicate their membership in these groups. Student participants were not required to disclose this information (the question was optional), and open-ended questions allowed for additional identities to be included in the final survey results.

The *UDL Today* surveys were designed to be accessible and take into consideration the needs of a variety of participants. However, additional direction was provided in the event a participant required specific disability-related accommodations.

Advertising

Each semester for the duration of the *UDL Today* research study students and educators were provided unique, live survey links through a variety of college approved channels, including through Mohawk College email address via Institutional Research software, college-wide announcements, and MyCanvas announcement tools. In addition, students were offered a survey QR code on the large television screens at the Fennell Campus and educators were provided with advertisements through the Centre for Teaching & Learning Innovation bi-weekly bulletin.

Advertisements for students and educators were issued:

- Prior to the surveys being open to provide information about the *UDL Today* research project and their options to participate if they wished to.

- When the surveys opened and included live links to the educator or student versions.
- During the period the surveys were open to remind those that wished to participate to complete the survey.

Limitations

We suspect that those who were using UDL, as an educator or learner, proceeded with the surveys. Meaning, those educators who had not engaged with UDL implementation, as well as learners who were unaware of UDL or its use in their courses, likely did not engage with the project. The results obtained are likely swayed towards those who are more well versed in UDL principles and implementation.

One of the challenges we experienced was with educators and learners not completing the survey more than one time. Meaning, participants in the Spring/Summer semester felt they had already contributed to the study and did not participate in the Fall and/or Winter survey administrations. However, the survey tools were designed to be completed each semester, because course offerings, UDL elements, learners, etc. differ from semester to semester. The issue of one-time respondents was noticed in the Fall 2023 administration when the number of respondents dropped dramatically from the previous (and less populated) Spring/Summer 2023 semester. We made minor changes to the *UDL Today* research study advertisements for the Winter 2024 semester to ensure participants knew they could complete the surveys again. While participation increased between the Fall 2023 semester and the Winter 2024 administration, it is not possible to state if the additional clarification was the cause.

Most Mohawk College courses are offered on a 14-week semester/term model, but alternate calendars exist and apprenticeship offerings are delivered in 8-week segments. While the project and survey opportunities were advertised prominently and well in advance, it is possible that some program and apprenticeship offerings fell between survey administrations.

Survey Results

Surveys included demographic and program information, general UDL knowledge measurement questions, and specific UDL implementation questions. The majority of the survey was organized by the UDL framework networks (affective, recognition and strategic) and focused on UDL elements within Mohawk College courses. For the UDL implementation questions students were asked if the UDL element was included in their course(s), if so, how many, and if not do they think they would find that element helpful to their learning. For the UDL implementation questions educators were asked if they had implemented the UDL element in their course(s),

if so, how many courses, and if they felt students found the element helpful to their learning. Survey questions were developed using Mohawk College's [UDL Standard \(PDF\)](#), LMS Audit (see Appendix B), and the previous [UDL research project](#).

Spring/Summer 2023 Administration

The *UDL Today* Spring/Summer semester student survey was administered online between July 3 and July 14, 2023 through general announcements to students using the channels noted earlier.

Many Mohawk College educators have time allotted for their vacation during the spring and summer, resulting in a change of educator for courses halfway through the semester. In order to gain feedback from as many educators within this semester as possible, the survey was administered online between June 19 and July 14, 2023. The change in timeframe allowed for educators taking their vacation time in the summer to complete the survey before they left, and those with vacations in the spring to complete when they returned. Between the change over in faculty there is also a mid-semester break of one week.

A total of 76 educators responded to the survey, with 75 who determined they were eligible and opted to complete the survey. A total of 426 students responded to the survey, with 336 who determined they were eligible and opted to complete the survey.

Notes Regarding the Spring/Summer Administration

It is important to note that several of the respondents used the comments section to indicate that they were not currently taking a course at the time of the survey administration. While the advertisements and survey introduction were explicit that students needed to be currently taking at least one course to complete the survey, it is apparent from the comments that this direction was not closely adhered to.

Fall 2023 Administration

The *UDL Today* Fall semester educator and student surveys were administered online between October 16 and October 27, 2023. All potential participants received announcements regarding the research project through the channels noted earlier.

A total of 147 students responded to the survey, with 134 who determined they were eligible and opted to complete the survey. A total of 33 educators responded to the survey, with 30 who determined they were eligible and opted to complete the survey.

Notes Regarding the Fall Administration

The drop in the number of respondents, educator and student, during a significantly more populous semester than the one previous was unanticipated. We suspect the lower respondent rate could be due to a couple of factors:

1. Educators and students who completed the surveys in the Spring/Summer semester may have felt they had already contributed to the research and were unable to do so again. While the advertisements indicated that each semester would have a survey for both groups to complete and that the surveys were based on the current semester's courses, it is possible that message was not explicit enough or well understood.
2. There are many competing demands in the Fall semester as both educators and learners start programs of study. It is possible that participants missed the announcements regarding the research study amongst the litany of communications that occur in the Fall semester. Additionally, it is possible respondents did not have the additional time to complete the surveys.

Winter 2024 Administration

The *UDL Today* winter semester educator and student surveys were administered online between February 26 and March 8, 2024. All potential participants received announcements regarding the research project through the channels noted earlier.

A total of 556 students responded to the survey, with 490 who determined they were eligible and opted to complete the survey. A total of 36 educators responded to the survey, with 33 who determined they were eligible and opted to complete the survey.

Notes Regarding the Winter Administration

Institutional technology changes were made prior to administration of the winter student and educator surveys. While these changes did not impact the *UDL Today* study directly, it did require the principal researcher's phone number be removed from the advertisements. No impact to participation was determined as the only correspondence from participants to the principal researcher in previous semesters occurred via email.

Due to a technical issue, the Winter 2024 survey administration started slightly later than planned. The issue was rectified by the Institutional Research Department and no impact to participation was found.

Overall Survey Results

The *UDL Today* student and educator surveys were administered three times over three semesters. A total of 1129 students responded to the survey, with 85% (960 respondents) who determined they were eligible and opted to complete the survey. A total of 145 educators responded to the survey, with 95%, (138 respondents) who determined they were eligible and opted to complete the survey.

Demographic and Foundational Information

Educator Demographic and Foundational Information

The majority of educator respondents were full time (57%) and 78% of all respondents have taught at Mohawk College for 9 years or less. Mohawk College provides over 100 full-time approved programs, in addition to apprenticeship and Continuing Education offerings (*Admission Requirements*). The top five program areas to respond were:

- Communications and Global Studies – 12% of all programs
- Continuing Education and Academic Development – 10% of all programs
- Liberal and Administrative Studies – 8% of all programs
- Building and Construction Sciences, Electrotechnology, and Mechanical – 8% of all programs
- Computer Science and Information Technology – 8% of all programs

On a ten-point scale (from “I am brand new to UDL to “I am a seasoned UDL implementer”), the majority of Mohawk College educators rate their UDL knowledge as a 6 or above (54%) with the majority rating their knowledge at a 7.

The ways Mohawk College educators access UDL supports and resources are:

- UDL webpages
- Professional development through Mohawk College (e.g., Course Re/Design, workshops, Inclusive Dialogue Series, etc.)
- MyCanvas Course Master Template - UDL
- Centre for Teaching & Learning Innovation
- Other faculty
- Teaching & Learning Consultant - UDL

When educators were asked what UDL supports they would be interested in accessing, the top result was “Individual consultation with the Teaching & Learning Consultant – UDL” followed by “Group/program/team consultation with the Teaching & Learning Consultant – UDL”, “Additional instruction in the MyCanvas Course Master Template – UDL” and “UDL support in new course development”. The lowest areas of interest were “A book club” and “External resources (e.g., CAST, UDL on Campus website, books)”. When asked how they prefer to access UDL supports and resources the majority responded “Remote, synchronously” (67%) followed by “Asynchronously” (57%).

When Mohawk College educators were asked if they implement UDL in the course(s) they teach, 81% said yes, they do. Of those that are implementing UDL in their course(s), 85% are doing so in the majority or all of their course complement. When those who were not implementing UDL in their course(s) were asked why they were not, 11 respondents stated they did not know how, 10 stated they require more UDL knowledge, and several comments indicated that the course was provided to them and they did not have the ability to change it.

Educators were asked a series of questions regarding their perspectives on UDL. 52% stated that they “always” or “usually” inform learners of the UDL element in their course(s). 62% stated they feel that the use of technology and/or the learning management systems supports UDL implementation, while 34% were “not sure”. 68% felt that Mohawk College learners benefit from UDL implementation, while 29% were “not sure”. Only 3% stated that they did not think that learners benefitted from UDL. The data was very similar when educators were asked if they benefitted from UDL implementation in their teaching with 63% stated they did benefit and 8% feeling that they did not.

Student Demographic and Foundational Information

The majority of student respondents were between the ages 21-25 (23%) and 31-40 (22%), followed by those under 20 (19%) and 26-30 (17%). Participants were offered the choice of self-identifying as a member of an equity-deserving or sovereignty-seeking group. Of the 960 students who agreed to participate in the *UDL Today* research project, 714 participants provided one or more self-identification(s):

- 5% identified as Indigenous
- 18% identified as a student with a disability
- 63% identified as an international student
- 13% identified as a first-generation student (e.g., the first person in their family to attend post-secondary education)
- 11% stated they had an additional identification they felt the *UDL Today* research study should be aware of. These identifications included (but is not limited to) being a member of the LGBTQQIP2SAA community, Deaf, parent, mature student, women in skilled trades, and previously incarcerated.

Students who self-identified as having a disability were asked if they had heard about UDL from Accessible Learning Services: 57% responded that they had, while 32% stated that they had not and 11% were unsure. When these respondents were asked if they feel UDL works with their accommodations 46% indicated “yes”, while 32% indicated “no” and 22% indicated they were “not sure”. When asked if UDL was helpful to student learning and if so, why, a portion of one student’s comment included:

“...Disabilities exist due to barriers. Disabilities require supports and accommodations. Supports and accommodations are very often behind MORE barriers. It is exhausting...UDL [i]s one of the easiest ways that the able-bodied world can eliminate certain barriers. Automatically designing the environment to be universally accessible, not just built around the “typical expectation” as it has been for years, is the step to lessening the impact of being disabled for many, many people. Again, disabilities exist due to barriers. Remove the barrier, and the disability becomes diversity...UDL, when done right, makes education more accessible and

achievable for absolutely everyone involved. UDL needs to continue to be implemented, in an effective widespread manner across all educational systems and institutions. Proven success with a universal design could be the very thing that kickstarts effective universal change in accessibility. In societal systems and spaces, external to education.”

Mohawk College offers certificate, diploma, and degree credential options (*Admission Requirements*). The majority of student respondents were in the first year of their program when they completed the survey (57%), while 22% were in their second year, 9% were in their third year or higher, 6% were not in a program (e.g., taking one course), and 6% identified as other which included recent graduates, those taking preparatory courses/programs, intensive programs and those who answered the first survey question incorrectly and were about to start their Mohawk College course/program.

The top five program areas student respondents were from were:

- Business and McKeil School of Business & Centre for Entrepreneurship (combined) – 21% of all programs
- Computer Science and Information Technology – 10% of all programs
- Health Studies – 10% of all programs
- Nursing – 8% of all programs
- Social Services & Justice Services – 8% of all programs

Students were asked a series of questions regarding their perspectives on UDL. 58% stated that they felt UDL was helpful to their learning, while 40% stated that they were not sure. When those who responded that UDL was helpful a plethora of comments (333) were provided, including:

- “I believe UDL helps faculty and students connect where the [former] can draft strategies that will be of help [then] students have the opportunity to be flexible on their day-to-day schedule.”
- “It allows all students a fair chance and provides extra time without students obtaining approval for extra time through accessible learning which is very convenient.”
- “UDL provides the opportunity for students to [access] various forms of explanation to the topic being discussed and it really enhances learning and good understanding.”
- “UDL is useful and helpful for student learning purposes because UDL helps students to access their resources and course information for the program and course.”
- “[I]s a crucial element to learning, students can be engaged or motivated to learn.”
- “Being an adult student is hard enough on top of the rest of life’s responsibilities. I believe UDL gives everyone a decent chance at proving themselves and their knowledge.”

- "Gives students more opportunity to succeed."
- "It provides a constructive, flexible, and inclusive way of educating or instructing a student."
- "I would not be able to attend Mohawk without the help[.]"

Respondents who stated that UDL was not helpful to their learning (2%) were asked why they felt it was not. Eleven comments were provided with only 2 directly related to UDL. One stated that "professors never even mention it [UDL]" and the other indicated that the impact of UDL they have seen is "adding time to quizzes" which they clarified they do not need. Comments of note were regarding disability-related accommodations and showed deep ableism that must be addressed by the College.

Learners were asked if UDL should be included in all of Mohawk College courses: 53% indicated "yes" and 45% indicated "I don't know". Again, when those who responded that UDL should be included in all Mohawk College courses, a wealth of comments (275) were provided, including:

- "It aims to make the learning process smoother and more efficient by eliminating any unnecessary hurdles that may hinder progress."
- "UDL is great when implemented effectively. I really enjoy the courses that include it. Flexibility, supportive and collaborative environment, and clarity of course structure are all desirable for Mohawk. Conversely, I've taken some classes without UDL that seemed rather disorganized and structurally confusing."
- "There are many barriers to students' success and figuring out where their difficulties lie. For example, it is very expensive and time-consuming to pursue an official diagnosis for a learning disability. Many people remain undiagnosed and continue to study/work, even though they could do much better and/or have an easier less stressful experience with accommodations. Not everyone can afford thousands of dollars to get the diagnosis. Not everyone is comfortable advocating for themselves."
- "To promote equity and accessibility in the learning process, it is essential to build a learning environment that addresses the issues faced by students from diverse backgrounds. This will ensure inclusiveness and prevent any form of judgment passed on them during class taking indirectly."
- "It is so beneficial for everyone, whether they '[need` it or not.'"
- "Incorporating universal design principles enhances an inclusive learning environment. Designing a course to accommodate a wider variety of needs may eliminate potential learning barriers or unnecessary learning obstacles."
- "UDL promotes flexibility in how information is presented, how students can express their understanding, and how they can engage with learning materials. This flexibility accommodates the diverse learning styles, preferences, and abilities of students, allowing them to access and engage with content in ways that work best for them."

- "Including Universal Design for Learning (UDL) in all Mohawk College courses ensures accessibility and equitable learning experiences for students with diverse needs, promoting an inclusive educational environment. UDL principles help address varied learning styles, ensuring that courses are designed to support the success of all learners."
- "Removing barriers and becoming more inclusive and fair benefits everyone. Why not? Why continue having so many barriers in college? Why wouldn't they be removed for the betterment of ALL students, including those who aren't just neurotypical white students who may or may not identify with having a disability. Silly question. Equity for all."
- "UDL improves the likelihood that someone who struggles in conventional learning environments will find success in their studies."
- "It is a verified and effective method which is essential for productive results."
- "Because by reducing the education barriers, with more flexibility of learning, this will give the opportunity for all students to participate in general education."

Again, 11 comments (2%) were received by those who responded that "no" UDL should not be included in all Mohawk College courses. While most of the comments were unrelated to UDL (more focused on general Mohawk College concerns), a few comments were focused on UDL and accommodations. Specifically, comments indicated a concern that the implementation of UDL may remove additional accommodation needs and showed a lack of understanding regarding the relationship between UDL and accommodations.

Learner participants were given an opportunity to provide additional comments about UDL at Mohawk College. While 267 comments were received for this question, many included comments that were unrelated to UDL (complaints about MyCanvas, Mohawk College processes, cost of college, etc.) or stated that respondents had no additional comments. However, there were a few comments of note, including:

- "UDL really made learning much...easier for me and my performance also really improved."
- "I enjoy when professors integrate UDL into their courses for everyone to utilize, rather than have it exclusive to those with accommodations. While I have accommodations myself, I recognize there are various reasons (embarrassment, feeling unworthy of extra help, unable to prove need for help, etc.) that someone may be unable to receive them. It also takes the pressure off time restraints, so students can focus solely on their studies, regardless if they need accommodations or not."
- "Great initiative! Students, especially mature students want to have the opportunity to learn effectively. This provides a clear framework for course materials and outcome expectations."

- “We are not told about UDL. We must figure out what it is and how it is engraved [sic] in our course. This creates confusion.”
- “I went to [university name removed] previously but dropped out because I could not finish my work within the time limits. Coming to Mohawk has changed my life and I feel like I can take the time to slowly work through my online quizzes.”
- “This [UDL] should be emphasized in the start of class.”
- “I specifically chose to enroll in Mohawk [C]ollege because it provided me with the most flexible methods of learning. I'm convinced that I will be successful in my academic goals because of the flexibility of the courses I'm taking.”
- “UDL promotes a more inclusive learning environment where students may feel valued and supported, regardless of their individual needs and backgrounds.”
- “1. **Personalized Learning:** UDL allows for tailored approaches, enabling students to learn in ways that align with their strengths and preferences. 2. **Improved Retention:** By presenting information through various modalities, UDL can enhance information retention and understanding for a broader range of students. 3. **Preparation for Real-world Diversity:** UDL mirrors the diversity students will encounter in their future careers, preparing them to adapt and collaborate in various professional environments. 4. **Reduction of Barriers:** UDL reduces barriers to learning, ensuring that students with disabilities or unique needs can participate fully in the educational process. 5. **Enhanced Critical Thinking:** Providing multiple means of representation and engagement fosters critical thinking skills as students are exposed to different perspectives and approaches to learning. 6. **Positive Learning Environment:** UDL contributes to a positive classroom climate by recognizing and valuing the diversity of students, creating an atmosphere where everyone feels included and respected.”

Survey Results and Recommendations

Overall, the strong majority of Mohawk College educators who responded to the surveys not only know what UDL is, but employ it consistently throughout the majority/all the courses they teach. Learners who opted to participate in the study indicated a variety of UDL elements currently in their course(s) and were able to identify which UDL elements would support their learning if they were implemented.

Table 1 includes generalized questions (organized by each of the UDL framework networks), the overall student and educator data for each question, as well as interpretations and UDL element specific recommendations. Comments provided by participants have been included in the Additional Recommendations section of this report.

Where “Yes” responses are below 60% the “No” and/or “I’m not sure” response percentages have also been included to offer a more fulsome picture of respondents’ perspectives on a specific UDL element. In addition, for each “Yes” response a percentage of courses that include the UDL element in the majority or all of the courses is provided. Recommendations have not been provided for UDL elements that are well established by educators and found to be beneficial by students.

It is important to note:

- Not all participants opted to respond to every survey question. The data provided in Table 1 represents percentages of all those who answered the corresponding question.
- The second most common response from educators was “I’m not sure”, rather than “no”. Meaning, educators were unsure if a UDL element was offered in the course they were teaching or not. There are a variety of reasons this could be, but the most likely is that an educator inherited the course from a previous delivery and was not totally sure of which UDL elements had already been included (as opposed to designing and developing themselves).
- Several UDL elements show a discrepancy between student and educator responses. Given the difference in the program areas between student respondents and educator participants, these discrepancies may exist because students completing the survey were not in the courses offered by the educators completing the survey. Additional explanations have also been offered where appropriate.

Table 1 – Summary of Survey Results from Mohawk College Educators and Students

Survey Question	Student Data	Educator Data	Interpretations and Element Specific Recommendations
Affective Networks – Multiple Means of Engagement			
1. Does the course encourage independent student responsibilities?	<p>Yes – 86% of student respondents stated their course(s) included this UDL element.</p> <ul style="list-style-type: none"> 72% majority or all courses <p>86% of those taking a course with this element stated it is helpful.</p> <p>74% of those taking a course without this element said they think it would be helpful to their learning.</p>	<p>Yes – 87% of educator respondents stated that they have implemented this UDL element.</p> <ul style="list-style-type: none"> 90% majority or all courses <p>54% of those who have implemented this element think students find it helpful and 40% stated they are not sure.</p>	
2. Can students complete, at least some, course content at their own pace or in any order they wish?	<p>Yes – 63% of student respondents stated their course(s) included this UDL element.</p> <ul style="list-style-type: none"> 51% majority or all courses <p>91% of those taking a course with this element stated it is helpful.</p>	<p>Yes – 78% of educator respondents stated that they have implemented this UDL element.</p> <ul style="list-style-type: none"> 75% majority or all courses <p>82% of those who have implemented this element think students find it helpful.</p>	<p>The ability to provide this UDL element may be program specific (e.g., governing bodies determining content and order) or the result of appropriate scaffolding on the part of the educator to ensure activation of prior learning before teaching new content and/or</p>

Survey Question	Student Data	Educator Data	Interpretations and Element Specific Recommendations
	62% of those taking a course without this element said they think it would be helpful to their learning.		<p>introducing and solidifying new content before moving to more challenging concepts.</p> <p>Recommendation</p> <p>In addition to reviewing the situational barriers that may be impeding this UDL element, recommend:</p> <ul style="list-style-type: none"> UDL resources and learning opportunities address this contextual difference while enhancing content to support educators' capacity to provide this UDL element where possible.
3. Is the course learning plan explicit and followed?	<p>Yes – 79% of student respondents stated their course(s) included this UDL element.</p> <ul style="list-style-type: none"> 79% majority or all courses 	<p>Yes – 86% of educator respondents stated that they have implemented this UDL element.</p> <ul style="list-style-type: none"> 97% majority or all courses 	

Survey Question	Student Data	Educator Data	Interpretations and Element Specific Recommendations
	<p>95% of those taking a course with this element stated it is helpful.</p> <p>61% of those taking a course without this element said they think it would be helpful to their learning.</p>	<p>83% of those who have implemented this element think students find it helpful.</p>	
<p>4. Do students have choice over how they submit, at least some, assignments?</p>	<p>Yes – 40% of student respondents stated their course(s) included this UDL element.</p> <ul style="list-style-type: none"> 55% majority or all courses <p>No – 45% of student respondents stated their course(s) did not include this UDL element.</p> <p>92% of those taking a course with this element stated it is helpful.</p> <p>48% of those taking a course without this element said they think it would be helpful to their learning.</p>	<p>Yes – 47% of educator respondents stated that they have implemented this UDL element.</p> <ul style="list-style-type: none"> 71% majority or all courses <p>No – 52% of educator respondents stated that they have not implemented this UDL element.</p> <p>86% of those who have implemented this element think students find it helpful.</p>	<p>Recommendation</p> <p>In addition to reviewing the situational barriers that may be impeding this UDL element, recommend:</p> <ul style="list-style-type: none"> Additional UDL resources and learning opportunities that address the systemic barrier(s) that may impact some educators from implementing this UDL element, while enhancing content to support educators' capacity to provide this UDL element where possible.

Survey Question	Student Data	Educator Data	Interpretations and Element Specific Recommendations
5. Are course learning goals/outcomes clear?	<p>Yes – 82% of student respondents stated their course(s) included this UDL element.</p> <ul style="list-style-type: none"> 82% majority or all courses <p>94% of those taking a course with this element stated it is helpful.</p> <p>72% of those taking a course without this element said they think it would be helpful to their learning.</p>	<p>Yes – 94% of educator respondents stated that they have implemented this UDL element.</p> <ul style="list-style-type: none"> 96% majority or all courses <p>72% of those who have implemented this element think students find it helpful.</p>	
6. Do the assessments accurately evaluate the course learning goals and outcomes?	<p>Yes – 70% of student respondents stated their course(s) included this UDL element.</p> <ul style="list-style-type: none"> 80% majority or all courses <p>96% of those taking a course with this element stated it is helpful.</p> <p>70% of those taking a course without this element</p>	<p>Yes – 95% of educator respondents stated that they have implemented this UDL element.</p> <ul style="list-style-type: none"> 98% majority or all courses <p>81% of those who have implemented this element think students find it helpful.</p>	

Survey Question	Student Data	Educator Data	Interpretations and Element Specific Recommendations
	said they think it would be helpful to their learning.		
7. Are students provided with assignment outlines that include explicit instructions, expectations, timelines and/or grading rubrics?	<p>Yes – 82% of student respondents stated their course(s) included this UDL element.</p> <ul style="list-style-type: none"> 83% majority or all courses <p>96% of those taking a course with this element stated it is helpful.</p> <p>77% of those taking a course without this element said they think it would be helpful to their learning.</p>	<p>Yes – 96% of educator respondents stated that they have implemented this UDL element.</p> <ul style="list-style-type: none"> 96% majority or all courses <p>89% of those who have implemented this element think students find it helpful.</p>	
8. Are due dates clear?	<p>Yes – 86% of student respondents stated their course(s) included this UDL element.</p> <ul style="list-style-type: none"> 91% majority or all courses <p>97% of those taking a course with this element stated it is helpful.</p>	<p>Yes – 97% of educator respondents stated that they have implemented this UDL element.</p> <ul style="list-style-type: none"> 98% majority or all courses <p>98% of those who have implemented this element think students find it helpful.</p>	

Survey Question	Student Data	Educator Data	Interpretations and Element Specific Recommendations
	76% of those taking a course without this element said they think it would be helpful to their learning.		
9. Are students prompted when due dates are coming up?	<p>Yes – 69% of student respondents stated their course(s) included this UDL element.</p> <ul style="list-style-type: none"> 79% majority or all courses <p>96% of those taking a course with this element stated it is helpful.</p> <p>76% of those taking a course without this element said they think it would be helpful to their learning.</p>	<p>Yes – 89% of educator respondents stated that they have implemented this UDL element.</p> <ul style="list-style-type: none"> 95% majority or all courses <p>86% of those who have implemented this element think students find it helpful.</p>	<p>There is a discrepancy between students who feel this UDL element is included in their courses (69%) and the number of educators that have indicated they offer this UDL element in their course(s) (89%). Given the educator response it is possible students may have missed the prompts, the prompts were provided through a channel that students do not use heavily, etc.</p> <p>Recommendations</p> <ul style="list-style-type: none"> Consistent promotion and use of the Course Master Template with UDL as it encourages the use of automatic notification tools.

Survey Question	Student Data	Educator Data	Interpretations and Element Specific Recommendations
			<ul style="list-style-type: none"> • Further research regarding course communications and effective practices. • UDL resources and learning opportunities to encourage educators to provide this UDL element.
10. Are large course elements, such as modules/units or assessments, broken down into smaller sections?	<p>Yes – 73% of student respondents stated their course(s) included this UDL element.</p> <ul style="list-style-type: none"> • 78% majority or all courses <p>97% of those taking a course with this element stated it is helpful.</p> <p>64% of those taking a course without this element said they think it would be helpful to their learning.</p>	<p>Yes – 92% of educator respondents stated that they have implemented this UDL element.</p> <ul style="list-style-type: none"> • 95% majority or all courses <p>82% of those who have implemented this element think students find it helpful.</p>	
11. Do students have opportunities to choose to work individually, in pairs or in groups?	<p>Yes – 55% of student respondents stated their course(s) included this UDL element.</p>	<p>Yes – 55% of educator respondents stated that they have implemented this UDL element.</p>	<p>There is a discrepancy between educators providing this UDL element (55%) and the number of students who feel it would be useful</p>

Survey Question	Student Data	Educator Data	Interpretations and Element Specific Recommendations
	<ul style="list-style-type: none"> 55% majority or all courses <p>No – 30% of student respondents stated their course(s) did not include this UDL element.</p> <p>62% of those taking a course with this element stated it is helpful.</p> <p>92% of those taking a course without this element said they think it would be helpful to their learning.</p>	<ul style="list-style-type: none"> 66% majority or all courses <p>No – 41% of educator respondents stated that they have not implemented this UDL element.</p> <p>75% of those who have implemented this element think students find it helpful.</p>	<p>(92%). In addition to the discrepancy explanation above, the discrepancy may be the result of courses that have no group or pair work or the learning outcome(s) do not require group work, so the UDL element cannot be provided as an option to learners.</p> <p>Recommendation</p> <ul style="list-style-type: none"> UDL resources and learning opportunities to address course difference while enhancing content to support educators' capacity to provide this UDL element where possible.
12. Are instructions for assignments, quizzes, and tests presented in a way that is inclusive and supportive?	<p>Yes – 76% of student respondents stated their course(s) included this UDL element.</p> <ul style="list-style-type: none"> 83% majority or all courses 	<p>Yes – 69% of educator respondents stated that they have implemented this UDL element.</p> <ul style="list-style-type: none"> 94% majority or all courses 	<p>A significant percentage (31%) of educators were not sure if their course assessment instructions are inclusive and supportive.</p>

Survey Question	Student Data	Educator Data	Interpretations and Element Specific Recommendations
	<p>97% of those taking a course with this element stated it is helpful.</p> <p>86% of those taking a course without this element said they think it would be helpful to their learning.</p>	<p>I'm not sure – 31% of educator respondents stated that they were not sure if they have implemented this UDL element.</p> <p>89% of those who have implemented this element think students find it helpful.</p>	<p>Recommendation</p> <ul style="list-style-type: none"> UDL resources and learning opportunities to encourage educators to provide this UDL element.
Recognition Networks – Multiple Means of Representation			
13. Have students been informed, explicitly, of the UDL elements included in the course?	<p>Yes – 46% of student respondents stated their course(s) included this UDL element.</p> <ul style="list-style-type: none"> 81% majority or all courses <p>No – 30% of student respondents stated their course(s) did not include this UDL element.</p> <p>I'm not sure – 24% of student respondents stated they were not sure if their course(s) included this UDL element.</p>	<p>Yes – 49% of educator respondents stated that they have implemented this UDL element.</p> <ul style="list-style-type: none"> 81% majority or all courses <p>No – 35% of educator respondents stated that they have not implemented this UDL element.</p> <p>I'm not sure – 16% of educator respondents stated that they were not sure if they have</p>	<p>The discrepancy between the 96% of students that would find this UDL element helpful and the 49% of educators who feel it would be is significant. In addition, 54% of student respondents indicating they did not know or were not sure their course(s) included these UDL elements is problematic. Mohawk College has a number of resources to support this UDL element. Data indicates that these resources are</p>

Survey Question	Student Data	Educator Data	Interpretations and Element Specific Recommendations
	<p>96% of those taking a course with this element stated it is helpful.</p> <p>59% of those taking a course without this element said they think it would be helpful to their learning.</p>	<p>implemented this UDL element.</p> <p>49% of those who have implemented this element think students find it helpful.</p>	<p>underused or have been missed.</p> <p>Recommendations</p> <ul style="list-style-type: none"> Increased promotion of the UDL Course Statement through CTLI communication channels and PD opportunities. Consistent promotion and use of the Course Master Template with UDL as it includes information, space and content to promote educators providing a UDL Course Statement.
14. Is the course content provided in multiple ways?	<p>Yes – 60% of student respondents stated their course(s) included this UDL element.</p> <ul style="list-style-type: none"> 72% majority or all courses 	<p>Yes – 83% of educator respondents stated that they have implemented this UDL element.</p> <ul style="list-style-type: none"> 91% majority or all courses <p>78% of those who have implemented this element</p>	<p>Recommendations</p> <p>In addition to reviewing the situational barriers that may be impeding this UDL element, recommend:</p> <ul style="list-style-type: none"> Consistent promotion and use of the Course Master Template with

Survey Question	Student Data	Educator Data	Interpretations and Element Specific Recommendations
	<p>95% of those taking a course with this element stated it is helpful.</p> <p>64% of those taking a course without this element said they think it would be helpful to their learning.</p>	<p>think students find it helpful.</p>	<p>UDL as it includes text-to-speech instructions for student use so learners can listen to content provided in HTML.</p> <ul style="list-style-type: none"> Share data with the Mohawk College Library to increase and/or improve access to additional course materials and Open Educational Resources.
<p>15. Do the learning opportunities and assignments in this course use students' prior knowledge?</p>	<p>Yes – 69% of student respondents stated their course(s) included this UDL element.</p> <ul style="list-style-type: none"> 72% majority or all courses <p>91% of those taking a course with this element stated it is helpful.</p> <p>61% of those taking a course without this element</p>	<p>Yes – 84% of educator respondents stated that they have implemented this UDL element.</p> <ul style="list-style-type: none"> 84% majority or all courses <p>74% of those who have implemented this element think students find it helpful.</p>	

Survey Question	Student Data	Educator Data	Interpretations and Element Specific Recommendations
	said they think it would be helpful to their learning.		
16. Are new terms, symbols and/or acronyms explained?	<p>Yes – 74% of student respondents stated their course(s) included this UDL element.</p> <ul style="list-style-type: none"> 80% majority or all courses <p>97% of those taking a course with this element stated it is helpful.</p> <p>75% of those taking a course without this element said they think it would be helpful to their learning.</p>	<p>Yes – 92% of educator respondents stated that they have implemented this UDL element.</p> <ul style="list-style-type: none"> 86% majority or all courses <p>93% of those who have implemented this element think students find it helpful.</p>	<p>There is a discrepancy between learner responses and educator UDL implementation (e.g., the vast majority of educator respondents have this UDL element in their courses, but that is not reflected in learner responses).</p> <p>Recommendation</p> <ul style="list-style-type: none"> Consistent promotion and use of the Course Master Template with UDL as it includes instructions and space to embed a course Glossary.
17. Are there links throughout the course materials that provide easy access to course activities, content, and assessments?	<p>Yes – 81% of student respondents stated their course(s) included this UDL element.</p> <ul style="list-style-type: none"> 78% majority or all courses 	<p>Yes – 93% of educator respondents stated that they have implemented this UDL element.</p> <ul style="list-style-type: none"> 95% majority or all courses 	

Survey Question	Student Data	Educator Data	Interpretations and Element Specific Recommendations
	<p>96% of those taking a course with this element stated it is helpful.</p> <p>78% of those taking a course without this element said they think it would be helpful to their learning.</p>	<p>89% of those who have implemented this element think students find it helpful.</p>	
18. Are the course materials and resources accessible?	<p>Yes – 84% of student respondents stated their course(s) included this UDL element.</p> <ul style="list-style-type: none"> 83% majority or all courses <p>98% of those taking a course with this element stated it is helpful.</p> <p>83% of those taking a course without this element said they think it would be helpful to their learning.</p>	<p>Yes – 75% of educator respondents stated that they have implemented this UDL element.</p> <ul style="list-style-type: none"> 96% majority or all courses <p>86% of those who have implemented this element think students find it helpful.</p>	<p>Given Mohawk College's AODA targets and EDI goals, 75% of course materials is insufficient at this time.</p> <p>Recommendation</p> <ul style="list-style-type: none"> Share data with Human Resources and Equity, Diversity and Inclusion Office to increase and/or improve access to AODA and accessibility related training and resources.
19. Does the course have interactive learning activities,	<p>Yes – 75% of student respondents stated their course(s) included this UDL element.</p>	<p>Yes – 83% of educator respondents stated that they have implemented this UDL element.</p>	

Survey Question	Student Data	Educator Data	Interpretations and Element Specific Recommendations
either online or in the classroom?	<ul style="list-style-type: none"> 67% majority or all courses <p>93% of those taking a course with this element stated it is helpful.</p> <p>65% of those taking a course without this element said they think it would be helpful to their learning.</p>	<ul style="list-style-type: none"> 86% majority or all courses <p>89% of those who have implemented this element think students find it helpful.</p>	
20. Are learning materials and presentations explicit and uncluttered?	<p>Yes – 64% of student respondents stated their course(s) included this UDL element.</p> <ul style="list-style-type: none"> 74% majority or all courses <p>96% of those taking a course with this element stated it is helpful.</p> <p>77% of those taking a course without this element said they think it would be helpful to their learning.</p>	<p>Yes – 85% of educator respondents stated that they have implemented this UDL element.</p> <ul style="list-style-type: none"> 94% majority or all courses <p>93% of those who have implemented this element think students find it helpful.</p>	<p>Suspect the low percentage for this UDL element by students is an indication of a need for knowledge and a result of course materials being passed from course to course. In addition, there is a discrepancy between student perception of learning materials and educator responses.</p> <p>Recommendations</p> <ul style="list-style-type: none"> Provide PD opportunities and resources specifically focused on inclusive

Survey Question	Student Data	Educator Data	Interpretations and Element Specific Recommendations
			<p>teaching, including materials.</p> <ul style="list-style-type: none"> Consistent promotion and use of the Course Master Template with UDL as it provides an explicit and uncluttered course organization framework for concise content organization.
Strategic Networks – Multiple Means of Action and Expression			
21. Have course navigation instructions been provided for students?	<p>Yes – 77% of student respondents stated their course(s) included this UDL element.</p> <ul style="list-style-type: none"> 83% majority or all courses <p>95% of those taking a course with this element stated it is helpful.</p> <p>69% of those taking a course without this element said they think it would be helpful to their learning.</p>	<p>Yes – 86% of educator respondents stated that they have implemented this UDL element.</p> <ul style="list-style-type: none"> 92% majority or all courses <p>73% of those who have implemented this element think students find it helpful.</p>	<p>Recommendations</p> <ul style="list-style-type: none"> Consistent promotion and use of the Course Master Template with UDL as it includes information on course navigation instructions and links to additional resources to make this UDL element easier to implement. Increased promotion of Course Navigation Instructions through

Survey Question	Student Data	Educator Data	Interpretations and Element Specific Recommendations
			CTLI communication channels and PD opportunities.
22. Has note taking support been provided for students?	<p>Yes – 45% of student respondents stated their course(s) included this UDL element.</p> <ul style="list-style-type: none"> 74% majority or all courses <p>No – 26% of student respondents stated their course(s) did not include this UDL element.</p> <p>I’m not sure – 29% of student respondents stated they were not sure if their course(s) included this UDL element.</p> <p>96% of those taking a course with this element stated it is helpful.</p> <p>66% of those taking a course without this element said they think it would be helpful to their learning.</p>	<p>Yes – 20% of educator respondents stated that they have implemented this UDL element.</p> <ul style="list-style-type: none"> 79% majority or all courses <p>No – 49% of educator respondents stated that they have not implemented this UDL element.</p> <p>I’m not sure – 31% of educator respondents stated that they were not sure if they have implemented this UDL element.</p> <p>58% of those who have implemented this element think students find it helpful and 37% stated that they were not sure if this UDL element would be helpful to learners.</p>	<p>The lack of note taking support indicated in this research study is significant as it is one of the most common disability related classroom accommodations for learners with disabilities. In addition, 29% of learners not knowing if note taking support is included in their course materials, as well as 31% of educators, is an issue.</p> <p>Suspect there may be an issue with the classification of note taking support (e.g., PowerPoint notes are provided, but learners or educators view those as general course materials, not a guide to support note taking).</p> <p>The discrepancy between the 96% of students who find this UDL element</p>

Survey Question	Student Data	Educator Data	Interpretations and Element Specific Recommendations
			<p>helpful and the 20% of educators who provide it is significant.</p> <p>Mohawk College has a number of resources to support this UDL element, including the Note Taking Support content on the UDL webpage. Data indicates that these resources are underused or have been missed.</p> <p>Recommendation</p> <ul style="list-style-type: none"> Increased promotion of the UDL related note taking resources and supports through CTLI communication channels and PD opportunities.
23. Are tools provided to guide goal setting and expectations?	<p>Yes – 58% of student respondents stated their course(s) included this UDL element.</p> <ul style="list-style-type: none"> 74% majority or all courses 	<p>Yes – 34% of educator respondents stated that they have implemented this UDL element.</p> <ul style="list-style-type: none"> 98% majority or all courses 	<p>Recommendations</p> <ul style="list-style-type: none"> Provide PD opportunities and resources specifically focused on guiding learner goal setting

Survey Question	Student Data	Educator Data	Interpretations and Element Specific Recommendations
	<p>I'm not sure – 26% of student respondents stated they were not sure if their course(s) included this UDL element.</p> <p>96% of those taking a course with this element stated it is helpful.</p> <p>71% of those taking a course without this element said they think it would be helpful to their learning.</p>	<p>No – 37% of educator respondents stated that they have not implemented this UDL element.</p> <p>I'm not sure – 29% of educator respondents stated that they were not sure if they have implemented this UDL element.</p> <p>66% of those who have implemented this element think students find it helpful.</p>	<p>and setting learning expectations.</p> <ul style="list-style-type: none"> Consistent promotion and use of the Course Master Template with UDL as it embeds detailed information about goal setting and expectations within each module/unit.
24. Does the course include a variety of assessment methods?	<p>Yes – 65% of student respondents stated their course(s) included this UDL element.</p> <ul style="list-style-type: none"> 75% majority or all courses <p>96% of those taking a course with this element stated it is helpful.</p> <p>79% of those taking a course without this element</p>	<p>Yes – 82% of educator respondents stated that they have implemented this UDL element.</p> <ul style="list-style-type: none"> 91% majority or all courses <p>82% of those who have implemented this element think students find it helpful.</p>	<p>The percentage of student respondents who would find this UDL element helpful but are not reporting it as an element found in their course(s), needs to be addressed.</p> <p>Recommendations</p> <p>In addition to reviewing the situational barriers that may be impeding this UDL element, recommend:</p>

Survey Question	Student Data	Educator Data	Interpretations and Element Specific Recommendations
	said they think it would be helpful to their learning.		<ul style="list-style-type: none"> Share data with CPQCs to support embedding this UDL element into their assessment focused PD opportunities. Provide additional PD opportunities and resources specifically focused on designing options for a variety of assessments.
25. Can students demonstrate their knowledge in multiple ways within the assessment methods?	<p>Yes – 58% of student respondents stated their course(s) included this UDL element.</p> <ul style="list-style-type: none"> 73% majority or all courses <p>No – 20% of student respondents stated their course(s) did not include this UDL element.</p> <p>I’m not sure – 22% of student respondents stated they were not sure if their course(s) included this UDL element.</p>	<p>Yes – 57% of educator respondents stated that they have implemented this UDL element.</p> <ul style="list-style-type: none"> 83% majority or all courses <p>No – 32% of educator respondents stated that they have not implemented this UDL element.</p> <p>81% of those who have implemented this element think students find it helpful.</p>	<p>There is a significant discrepancy between learners who would find this UDL element helpful and those who indicated multiple assessment methods were in their course(s). Similarly, educators indicated a high percentage of those that have not included this element, but also indicated they feel it would be beneficial.</p>

Survey Question	Student Data	Educator Data	Interpretations and Element Specific Recommendations
	<p>96% of those taking a course with this element stated it is helpful.</p> <p>77% of those taking a course without this element said they think it would be helpful to their learning.</p>		<p>Recommendations</p> <p>In addition to reviewing the situational barriers that may be impeding this UDL element, recommend:</p> <ul style="list-style-type: none"> • Share data with CPQCs to support embedding this UDL element into their assessment focused PD opportunities. • Provide additional PD opportunities and resources specifically focused on designing options to demonstrate knowledge.
26. Do students have multiple ways to communicate (with the educator and/or classmates)?	<p>Yes – 65% of student respondents stated their course(s) included this UDL element.</p> <ul style="list-style-type: none"> • 81% majority or all courses 	<p>Yes – 86% of educator respondents stated that they have implemented this UDL element.</p> <ul style="list-style-type: none"> • 80% majority or all courses <p>77% of those who have implemented this element</p>	<p>Students indicated that this UDL element is very helpful to their learning, but only 65% indicate that their courses have multiple ways to communication with their educator and/or classmates.</p>

Survey Question	Student Data	Educator Data	Interpretations and Element Specific Recommendations
	<p>94% of those taking a course with this element stated it is helpful.</p> <p>68% of those taking a course without this element said they think it would be helpful to their learning.</p>	<p>think students find it helpful.</p>	<p>Recommendation</p> <ul style="list-style-type: none"> • Provide PD opportunities and resources specifically focused on designing options for communication between educators and learners.
<p>27. Are students encouraged to communicate with faculty and classmates within the course?</p>	<p>Yes – 76% of student respondents stated their course(s) included this UDL element.</p> <ul style="list-style-type: none"> • 79% majority or all courses <p>94% of those taking a course with this element stated it is helpful.</p> <p>77% of those taking a course without this element said they think it would be helpful to their learning.</p>	<p>Yes – 99% of educator respondents stated that they have implemented this UDL element.</p> <ul style="list-style-type: none"> • 96% majority or all courses <p>77% of those who have implemented this element think students find it helpful.</p>	<p>There is a discrepancy between the educator data (99% of respondents offering this UDL element and only 76% of students indicating it exists in their courses), as well as the number of students who find this UDL element helpful and those who feel it would be helpful.</p> <p>Recommendation</p> <ul style="list-style-type: none"> • Consistent promotion and use of the Course Master Template with UDL as it includes a specific section for

Survey Question	Student Data	Educator Data	Interpretations and Element Specific Recommendations
			<p>contact information, as well as instructions to educators to encourage it's use. Further, consistent use of the template would support learners in finding educator contact information quickly in each course they take.</p>
28. Do assessments build on each other and allow for multiple opportunities for students to show their knowledge?	<p>Yes – 69% of student respondents stated their course(s) included this UDL element.</p> <ul style="list-style-type: none"> 74% majority or all courses <p>96% of those taking a course with this element stated it is helpful.</p> <p>78% of those taking a course without this element said they think it would be helpful to their learning.</p>	<p>Yes – 86% of educator respondents stated that they have implemented this UDL element.</p> <ul style="list-style-type: none"> 89% majority or all courses <p>72% of those who have implemented this element think students find it helpful.</p>	<p>Given the percentage of students who indicated this UDL element would be beneficial to their learning, the lower percentage of those experiencing it in their course(s) is significant.</p> <p>Recommendations</p> <ul style="list-style-type: none"> Share data with CPQCs to support embedding this UDL element into their assessment focused PD opportunities.

Survey Question	Student Data	Educator Data	Interpretations and Element Specific Recommendations
			<ul style="list-style-type: none"> Provide PD opportunities and resources specifically focused on scaffolding assessments and designing options to demonstrate knowledge for communication between educators and learners.
29. Are online and/or in-class quizzes/tests/exams untimed, or have had additional time proactively added?	<p>Yes – 49% of student respondents stated their course(s) included this UDL element.</p> <ul style="list-style-type: none"> 68% majority or all courses <p>No – 29% of student respondents stated their course(s) did not include this UDL element.</p> <p>I’m not sure – 22% of student respondents stated they were not sure if their course(s) included this UDL element.</p>	<p>Yes – 74% of educator respondents stated that they have implemented this UDL element.</p> <ul style="list-style-type: none"> 89% majority or all courses <p>87% of those who have implemented this element think students find it helpful.</p>	<p>The discrepancy between learner perceptions of this UDL element and educator implementation should be noted. Educator respondents feel they are proactively including additional time, but learner respondents indicated they are unaware or unsure if additional time has been proactively added. Mohawk College has a variety of resources to support this UDL element including the Additional Time for Quizzes/Tests/Exams content on the UDL</p>

Survey Question	Student Data	Educator Data	Interpretations and Element Specific Recommendations
	<p>93% of those taking a course with this element stated it is helpful.</p> <p>62% of those taking a course without this element said they think it would be helpful to their learning.</p>		<p>webpage, a modifiable statement to inform learners of the UDL element, information on the Accommodations and Universal Design for Learning webpage, and a statement on Accommodation Letters.</p> <p>Recommendations</p> <p>In addition to reviewing the situational barriers that may be impeding this UDL element, recommend:</p> <ul style="list-style-type: none"> • Draw attention to and enhance UDL resources and learning opportunities to encourage this UDL element. • Support ALS to develop/enhance their resources to inform learners and educators of how disability related

Survey Question	Student Data	Educator Data	Interpretations and Element Specific Recommendations
			accommodations and UDL work in tandem.
30. Are students able to access course content, activities, and assessments from multiple areas of the course?	<p>Yes – 68% of student respondents stated their course(s) included this UDL element.</p> <ul style="list-style-type: none"> 79% majority or all courses <p>97% of those taking a course with this element stated it is helpful.</p> <p>61% of those taking a course without this element said they think it would be helpful to their learning.</p>	<p>Yes – 82% of educator respondents stated that they have implemented this UDL element.</p> <ul style="list-style-type: none"> 98% majority or all courses <p>69% of those who have implemented this element think students find it helpful.</p>	<p>Recommendation</p> <ul style="list-style-type: none"> Consistent promotion and use of the Course Master Template with UDL as it embeds detailed information about goal setting and expectations within each module/unit.

Additional Recommendations

While the goals of the UDL framework remain to encourage “purposeful, motivated learners” who are “resourceful, knowledgeable, strategic [and] goal-directed”, version 3.0 of the guidelines will be presented within the next year and may impact the implementation of some of the recommendations made here (*About universal design for learning* 2024). However, the *UDL Today* study data collected clearly indicates the needs and priorities of learners and educators, and has provided strategic direction and viable recommendations for continued college-wide UDL implementation in addition to those found in Table 1.

Review and Removal of Systemic Barriers

The majority of question responses, between educators and students were well aligned; the UDL elements students found helpful were the same as those educators had included and/or thought would be helpful. However, there were some notable exceptions where the lack of UDL implementation is more likely due to a college-wide systemic barrier, as opposed to an educator not being willing or having the resources to implement the element. These exceptions include:

- Question 2: Can students complete, at least some, course content at their own pace or in any order they wish?
 - This UDL element may not be able to be offered widely as there may be program specific limitations (governing bodies determining content and order). Alternatively, limited use of this UDL element may be the result of appropriate scaffolding on the part of the educator to ensure activation of prior learning before learning new content and/or introducing and solidifying new content before moving to more challenging concepts.
- Question 4: Do students have choice over how they submit, at least some, assignments?
 - As noted in the educator comments, “As our courses are commonly driven by specific formats for each assignment the ideal of proving mastery by means of a range of different assignment options is seldom feasible” and “...SWF [standard workload formula] issues because faculty are not compensated in a way that allows students to choose assessment methods because of grading times associated (e.g., m/c versus short answer, video, or poster).” While educators may wish to provide submission options for assignments, systemic barriers exist that make this UDL element a challenge within their course development process and teaching practice.
- Question 14: Is the course content provided in multiple ways?

- One of the reasons for this may be regulated materials from governing bodies and a lack of understanding regarding how those materials could be supplemented to provide additional content options.
- Question 19: Does the course have interactive learning activities, either online or in the classroom?
 - Interactive learning activities should be present in 100% of all Mohawk College courses, but there are a variety of reasons this may not be possible including SWF time, delivery modalities, and lack of understanding regarding what constitutes a learning activity.
- Question 24: Does the course include a variety of assessment methods?
 - There are a variety of situational barriers that could impact the ability to offer a variety of assessment methods in a course (e.g., limited time for evaluation on a Standard Workload Formula or SWF, regulatory body determining assessments, etc.).
- Question 25: Can students demonstrate their knowledge in multiple ways within the assessment methods?
 - Similar to question 24, there are a variety of situational barriers that could impact the ability to offer a variety of assessment methods in a course (e.g., limited time for evaluation on a SWF, regulatory body determining assessments, etc.).
- Question 29: Are online and/or in-class quizzes/tests/exams untimed, or have had additional time proactively added?
 - There are a variety of situational barriers that could impact the ability of educators to proactively provide additional time or untimed quizzes/tests/exams (e.g., time is an element of the learning outcome, in-class tests do not have the classroom time required due to scheduling, etc.).

Barriers to UDL implementation exist and these barriers are often outside of the control of the educator or learner to remove. It is recommended that:

1. Mohawk College academic schools, programs and course offerings review the current UDL implementation barriers inherent within their scope and develop plans to review, or lessen, the identified barriers.
2. CTLI explore systemic barriers when supporting curriculum design, development and delivery and inform management of these barriers for review and removal.

Course Master Template with UDL

In addition to the UDL specific question data, numerous comments on both the educator and student surveys requested more consistent online course layouts with UDL implementation support. One student participant stated:

“What we truly need is for the way courses are presented to be streamlined. Every single teacher has a different set up. It is confusing and frustrating. We spend more time looking for items than we do almost anything else.”

Mohawk College currently has a Course Master Template with UDL and educator participants indicated that the Course Master Template with UDL is one of the primary resources they access for UDL content and implementation support (*MyCanvas Course Master Template*). Use of this template has been optional and, while it has been widely adopted amongst a variety of programs, promotion of the template has not been consistent among digital staff roles in the Centre for Teaching & Learning Innovation meaning new educators or those looking to redesign courses are not consistently made aware of the template. Given that more than 25% of the UDL elements indicated in Table 1 recommend consistent promotion and use of the Course Master Template with UDL, focus should be placed on revising it to ensure student and educator learning and communication needs are met. In addition, educators indicated they would like “[a]dditional instruction in the MyCanvas Course Template – UDL”.

It is recommended that the Course Master Template with UDL be:

1. Updated to (more) prominently include the UDL elements indicated in Table 1
2. Endorsed, with program specific adaptations as needed, for all course design and redesign efforts
3. Prominently advertised and professional development sessions offered to encourage use
4. Reviewed and revised, in accordance with learner and educator feedback, on a regular basis

UDL Professional Development

In addition to the UDL element recommendations, made in Table 1, which included developing and/or expanding UDL resources for elements deemed priorities by participants, themes regarding UDL resources and professional development emerged from educator responses. The themes outlined below require additional recommendations to ensure educator learning needs and wants are addressed.

Educators indicated that they felt that professional development focused on UDL should be mandatory for new educators. When educators were asked what UDL supports they would be interested in accessing one commented “A training module available to professors. Maybe there is one, but new teachers need to be directed to find it!” Currently, Mohawk College participates in the College Development Educator Program (CEDP) with a number of other western region colleges. CEDP’s “mission is to foster teaching excellence through the shared exploration of evidence-based teaching and engagement in ongoing reflective teaching practice” and is mandatory for all new, full-time faculty (*New faculty onboarding*). While

CEDP has made attempts to include UDL in their program, it is currently not modelled throughout the program and the content that has been included to date is focused on the technical aspects of accessibility, not actual UDL principles or application of UDL in higher education. Further, the UDL/accessibility sessions are an offering that can be selected, but are not mandatory. Teaching for Success (TFS) is offered by Mohawk College and is only available to new, part-time educators. It is an 11-hour professional development opportunity that includes UDL and inclusive teaching content. Delivery of TFS is primarily asynchronous, but includes optional synchronous support sessions (*New faculty onboarding*). Part-time educators are informed of TFS through the contract letter they receive from Human Resources. Registration and completion of TFS is monitored by CTLI, as well as the program area. In short, UDL content exists and is available specifically for new part-time Mohawk College faculty, but data suggests that some educators remain unaware of the opportunity.

In addition to new faculty focused offerings, CTLI offers a wide variety of professional development sessions that embed the principles of UDL. Embedding UDL initiatives and implementation was a strategic decision made in 2018 to support educators to see UDL as a part of their curriculum design, development and delivery work, as opposed to in addition to it. However, educators indicated that a lack of knowledge was the primary reason they had not implemented UDL in their course(s). It would be beneficial to explicitly indicate that UDL is an integrated part of other CTLI offerings (e.g., the Course Re/Design series, MyCanvas sessions, etc.).

One educator commented “[t]eachers should get certified training on UDL”. Each of the offerings noted earlier provide a certificate of completion when the participant meets the learning outcomes. However, because of their broad focus on teaching and learning, it would be insufficient to state that educators are receiving certified training. Fortunately, CTLI, in conjunction with Human Resources, is in the process of developing the [Universal Design for Learning for Inclusivity, Diversity, Equity and Accessibility \(UDL for IDEA\) book](#) into an internal professional development offering that will provide participants with credit on their employee transcript through Working at Mohawk (Benton Kearney, 2022).

Given the educator survey data regarding access preferences, focus should be on delivering high quality remote sessions and improving access to asynchronous content and resources. It is recommended that UDL professional development:

1. Be more prominently advertised within Mohawk College’s professional development offerings
2. Become mandatory content in CEDP
3. Be delivered through a variety of modalities, but with an increased focus on high quality remote synchronous and asynchronous sessions

4. Be explicitly advertised when part of another CTLI or Mohawk College professional development offering
5. Be expanded to include UDL for IDEA as a college-wide offering that educators can gain credit for on their Mohawk College employee transcript and obtain a certificate of completion

UDL Resources and Website

Educators indicated that one of the most common ways they access UDL content is through Mohawk College's UDL webpage. The new or revised resources indicated as recommendations in Table 1 should be posted publicly on Mohawk College's UDL webpage for easy access and asynchronous learning.

An educator commented "[i]t would be nice to have an audit process to check and improve our work." In addition, there were several educator comments, found throughout the educator survey, asking for UDL resources (e.g., a tool to audit their own courses for UDL elements, UDL resources, UDL training for full and part-time educators, etc.) that already exist within Mohawk College and are publicly available on [Mohawk College's UDL webpage](#) (e.g., [UDL Course Assessment](#)) and included in a wide variety of CTLI professional development offerings (e.g., [Teaching for Success](#)) (*Universal Design for Learning 2023, New faculty onboarding*). These comments demonstrate an interest in learning more about UDL and also a lack of promotion of the tools and resources the institution currently has. Currently, UDL resources and professional development opportunities are available and/or advertised through CTLI channels, including the CTLI webpage and the CTLI Bulletin. UDL content housed on the CTLI webpage is located under the subheading "Teaching Effectively", which may not be an intuitive space for those seeking UDL content. UDL content within CEDP, Teaching for Success, the Course Re/Design Series is not explicitly advertised.

It is recommended that UDL resources:

1. Continue to be public facing on Mohawk College's website, but located in a more inclusive and accessible location

Accessible Learning Services

Students with disabilities offered a number of recurring themes across all surveys. As noted earlier, learners who self-identified as having a disability were asked if they had heard about UDL from Accessible Learning Services: 57% responded that they had, while 32% stated that they had not and 11% were unsure. When these respondents were asked if they feel UDL works with their accommodations 46% indicated "yes", while 32% indicated "no" and 22% indicated they were "not sure". However, the comments provided by educators and students indicated confusion between the application of UDL and accommodations. One student comment stated:

"Some courses might need to have more tailored accommodations for students. With the UDL, some professors might think that it is a "one size fits all" solution, and may be reluctant to add more accommodations on top of it."

Another stated "UDL means that students to require extra time don't actually receive it...20 minutes for everyone for a test that should have been 10 minutes is still not the same as an accessibility student receiving 100% extra time" demonstrating confusion regarding accommodations meeting individual, disability related learner needs, as opposed to applying accommodations in relation to other learners. In addition, several objections to UDL being implemented in all Mohawk College courses came from learners who identified as having a disability. Their comments indicated confusion regarding how UDL could limit their individualized accommodations and give others increased opportunities for success, as opposed to removing the barrier that makes those accommodations necessary.

While the revised [Academic Accommodation for Students with Accessibility Needs Policy](#) (*Academic accommodation for students with Accessibility Needs Policy 2024*) and the [Accommodations and UDL webpage](#) (*Accommodations and Universal Design for Learning*) will likely clarify some of these challenges, it is recommended that:

1. ALS make a targeted effort to inform learners with disabilities of UDL at Mohawk College, including how UDL may, or may not, impact accommodations. Specifically, based on some of the comments made, the focus of UDL and accommodation discussions should be centered on ensuring the individual student's disability related needs are met based on their documentation and lived experience, as opposed to accommodations in relation to other learners.
2. CTLI provide ALS with current, accessible and supportive content to inform learners of UDL, which should include relocating the UDL webpage content to a more neutral location for increased student access.

Equity Deserving and Sovereignty Seeking Populations

While the *UDL Today* research study was not able to carve specific respondent answers out from the surveys, it was clear from the self identification of 714 student respondents that there is an interest in UDL within these groups. It is recommended that:

1. Further research (formal or informal) is required to determine UDL use in teaching and learning spaces to appropriately prioritize future implementation.
2. Update Mohawk College's EDI Action Plan to better align with UDL's capacity to support equity deserving and sovereignty seeking populations, which may include removing language exclusively tying UDL to accessibility and adding

language that more directly links UDL to equity, diversity and access for all diverse populations.

3. Develop and situate applicable resources and learning opportunities.
 - When educators were asked which resources they access for UDL information or support one responded “UDL aligns with Indigenous ways of teaching and learning; I consult with community members and Indigenous colleagues.” CTLI needs to review access points for UDL content and collaborate with departments to ensure resources and learning opportunities are aligned with population needs.
 - UDL website content, currently located under the heading “Teaching Effectively” on the Centre for Teaching & Learning Innovation website should be relocated to a more prominent and neutral space on Mohawk College’s website to be explicit about its content and resources being for all College community members including students and educators from equity deserving and sovereignty seeking populations.

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Appendix A

Universal Design for Learning Today: Measuring Mohawk College's Implementation

Literature Review

Peggy French, M.E.T., M.L.I.S. and Darla Benton Kearney, M.A.

Purpose

The *UDL Today* literature review aims to:

- Review current UDL in higher education research to identify research needs and gaps.
- Determine current UDL implementation practices within higher education.
- Identify key recommendations for UDL inclusion as they pertain to Mohawk College and its strategic priorities.

Literature Review

Courts, R., Chatoor, K., Pichette, J., Okojie, O., & Tishcoff, R. (2023, April 19).

HEQCO's dialogues on Universal Design for Learning: Finding common ground and key recommendations from the sector. Higher Education Quality Council of Ontario. <https://heqco.ca/pub/heqcos-dialogues-on-universal-design-for-learning-finding-common-ground-and-key-recommendations-from-the-sector/>

In 2021-2022, the Higher Education Quality Council of Ontario (HEQCO) sought to determine the state of UDL implementation in Ontario's post-secondary institutions. The research project, which was comprised of virtual events engaging 103 Ontario post-secondary stakeholders, was designed to find gaps in UDL implementation and provide recommendations to the sector in order to improve UDL uptake in support of more inclusive, accessible and equitable higher education. HEQCO made three key recommendations in order to institutionalize UDL across the sector:

1. Establish UDL as an institutional policy.
2. Facilitate opportunities for faculty and staff (including senior administrators) to connect and learn.
3. Evaluate UDL update and outcomes to monitor institutionalization progress.

While Mohawk College has successfully completed the first recommendation and is diligently working on the second, the third recommendation requires a more focused commitment, hence the current *UDL Today* research project.

Davis, McLaughlin, M. K., & Anderson, K. M. (2022). Universal Design for Learning:

A framework for blended learning in nursing education. *Nurse Educator*,

47(3), 133–38. <https://doi.org/10.1097/NNE.0000000000001116>

Applying UDL as a framework for hybrid teaching and learning is the focus. Deconstructing the components of UDL – Engagement, Representation, Action & Expression – and aligning them to UDL strategies leads to implications for learners, educators, and institutions of higher education. Providing an inclusive teaching and learning environment requires investment. “Educational institutions will be challenged to make the investments in faculty education, technological support, learning software, and support services that are needed to make full use of [hybrid] blended learning opportunities within a UDL framework”.

Griful-Freixenet, J., Struyven, K., & Vantieghem, W. (2021). Toward more inclusive

education: An empirical test of the Universal Design for Learning conceptual

model among preservice teachers. *Journal of Teacher Education*, 72(3), 381-

95

Empirical research, cited as lacking for UDL, was undertaken with preservice teachers. The 1,134 preservice teacher sample size represented both rural and urban areas and an almost equal percentage of women and men. However, over 90% of participants were from a Western European background. Adapting the *Inclusive Teaching Strategies Inventory (ITSI)* resulted in a, 10 item, 7-point Likert-type scale to measures preservice teachers’ actions toward UDL principles. Other established measurement tools captured data on mindset, efficacy, and self regulation and motivation. Highlights from the research underscore the importance of cultivating a growth mindset and building self-efficacy in preservice teachers to meet UDL goals. Self regulation and motivation trailed far behind in importance.

These identified underpinnings clearly inform an organization's educator training and development offerings.

Hromalik, C. D., Myhill, W. N., & Carr, N. R. (2020). "ALL faculty should take this":

A Universal Design for Learning training for community college faculty.

TechTrends: Linking Research & Practice to Improve Learning, 64(1), 91–

104. <https://doi-org.ezproxy.mohawkcollege.ca/10.1007/s11528-019->

[REQUIRE 00439-6](https://doi-org.ezproxy.mohawkcollege.ca/10.1007/s11528-019-)

A Community College's *UDL Academy* was created in response to research signaling the ineffectual practice of one-off UDL workshops offered at most institutions. Across two years and cohorts, the *UDL Academy* was fine tuned with recommendations to: ground the work in collaborative inquiry; require evidence of work or project completed; and schedule facilitations with plenty of room in-between. Facilitators guide problem identification, data gathering, appropriate solutions, and idea implementation.

Mora, A. M. M., Chiva, I., & Lloret-Catala, C. (2021). Faculty perception of inclusion

in the university: Concept, policies and educational practices. *Social/*

Inclusion, 9(3), 106–116. <https://doi.org/10.17645/si.v9i3.4114>

Aligning UDL with post-secondary's social responsibility and the United Nations' Sustainable Development Goals reinforces UDL as an essential component for inclusive teaching and learning environments. The empirical nature of the research, in combination with qualitative, is notable for its rarity in UDL and social inclusion research. By isolating three key dimensions associated with diversity in post-secondary education: diversity concept or culture, policies and programmes of the institution, and inclusive educational practices, the research explores where higher education institutions sit along the UDL continuum in each of the dimensions. Research indicates educators are committed to the obligations across the three dimensions, but systematizing policies that promote research, innovation, and teaching committing to the social responsibility of higher education institutions are lacking. Policies must lead to action and "investment in teacher training in inclusive practices and contribute to create the resources necessary to make it possible".

Napierala, J., Pilla, N., Pichette, J., & Colyar. (2022, March 30). Ontario learning during the COVID-19 pandemic: Experiences of Ontario first-year postsecondary students in 2020–21. Higher Education Quality Council of Ontario. <https://heqco.ca/pub/ontario-learning-during-the-covid-19-pandemic-experiences-of-ontario-first-year-postsecondary-students-in-2020-21/>

The Fall of 2020 saw the first learners who experienced emergency remote learning due to COVID-19 pandemic lockdowns transition from secondary school to higher education. While the survey-based study was small (565 participants) HEQCO was able to gain critical data from college and university students regarding both their challenges, as well as beneficial supports during the transition. A key recommendation of this study was to embed UDL “principles in all courses, as well as the delivery of services, and where possible, co-curricular activities.” Further, participants noted that UDL implementation was “key to their success”. The HEQCO study also highlighted a clear need to obtain baseline data so that causal relationships between student perceptions and UDL implementation can be made in the future, potentially.

Pichette, J., Brumwell, S., Rizk, J. (2020a, September 11). Improving the accessibility of Remote Higher Education: Lessons from the pandemic and recommendations. Higher Education Quality Council of Ontario. <https://heqco.ca/pub/improving-the-accessibility-of-remote-higher-education-lessons-from-the-pandemic-and-recommendations/>

HEQCO embarked on a study to not only identify the impacts of remote education during the COVID-19 pandemic, but also provide recommendations for post-secondary institutions to improve the accessibility of remote education long term. Although the primary focus of this study was the remote education needs of learners with disabilities, the findings and recommendations are applicable to all equity and sovereignty deserving students, regardless of delivery modality. One of the primary recommendations of the report was to incorporate UDL principles into all higher education courses. In addition, a number of other recommendations (e.g., “[e]mpowering students to make choices that suit their needs”, “[f]inding ways to facilitate engagement...”, and “[r]ecording synchronous lectures...”) are

elements of UDL guidelines and practice. While most of the recommendations found in this report appear primarily relevant to remote learning, when slightly adapted they are equally relevant to in-person learning.

Schreffler, Vasquez III, E., Chini, J., & James, W. (2019). Universal Design for Learning in postsecondary STEM education for students with disabilities: A systematic literature review. *International Journal of STEM Education*, 6(1), 1–10. <https://doi.org/10.1186/s40594-019-0161-8>

While the title is specific, factoring in the article's foundation, a literature review, as well as its contrasting of secondary and post-secondary education highlights important considerations for Mohawk's research. Schreffler and colleagues note that UDL principles, while firmly embedded in K-12 teaching and learning, remains relatively new in the post-secondary environment with little research on its impact. And this article (as well as others reviewed) highlights that UDL can have the most impact on students with more complex learning challenges and correlates the majority of these students attend colleges over universities. It cites designing and developing using the UDL lens and planning for learner variability, reduces stress on instructors who previously had to adapt teaching at the last minute and provides a level of comfort for learners who can be assured there is support in the design rather than searching out support as the course is delivered. The research is particularly interesting as it is both qualitative and quantitative. The groups were also monitored over multiple years to confirm the initial findings. The underscoring of limited research into UDL as a direct benefit to student growth, especially for students with difficulties with executive functions, may guide Mohawk's future investigations.

Wijeratne, Dennehy, D., Quinlivan, S., Buckley, L.-A., Keighron, C., & Flynn, S. (2022). Learning without limits: Identifying the barriers and enablers to equality, diversity, and inclusion in IS education. *Journal of Information Systems Education*, 33(1), 61–74

Core to this recent research is the assertion that attention to inclusion needs to extend past awareness to curriculum design and development. Educators need to anticipate diversity. The guiding question, "Who is being left out as a result of this approach?" grounds course design. Highly-structured course design with a strong focus on problem-solving and higher order cognitive skills is shown to 'close the

gaps' and meet the needs of all learners. To stimulate motivation, researchers recommend involving students in learning and teaching processes i.e., Open Pedagogy to co-create assessments, ensure up-to-date and relevant resources, etc. It warns against the checklist approach, but does provide a roadmap to assist educators. The article asserts that small changes can have a large impact and cites (as well as includes in the article) an "Inclusive Teaching and Learning Practice Statement" as one such example. A key takeaway from the research is that preservice teachers embrace CAST's UDL guidelines under the three headings: Engagement, Representation, and Action & Expression as three interrelated principles that comprise not only practice, but a philosophy.

Universal Design for Learning Today: Measuring Mohawk College's Implementation

Learning Management System Audit

Amy Cook, M.Ed. and Darla Benton Kearney, M.A.

UDL and Technology

According to Black and Moore (2019) “[t]echnology is essential for making curricula flexible and accessible” because it empowers learners to customize their learning experience to meet their individual needs (p. 57). Like physical accessibility requirements, retrofitting a developed environment is more labour intensive than building an inclusive and accessible environment from the outset. It is essential to consider the intersection of UDL and the LMS in the course development stage. “UDL and technology should go hand-in-hand” when designing learning experiences with this intersectionality being viewed as essential (Buckland, 2012, p. 124).

All of this is not to imply that UDL needs technology to be implemented in higher education. However, UDL implementation without the use of technology “is both more time-intensive for instructors and option-poor for learners” (Black & Moore, 2019, p. 58). Leveraging technology to support UDL implementation in higher education supports “skilled learners to make independent choices to render the learning experience more tailored to their needs, preferences, and skills”, thus creating more independent and masterful learners (Black & Moore, 2019, p. 58).

Simply adding technology to a course will not effectively support UDL implementation in a meaningful or efficient way. Black and Moore (2019) state “technology in the classroom has much more to do with how it is used and the intentionality of its use than whether or not it is used” (p.60). Meaning technology:

- Needs to be a consideration at the course design level.
- Is added to courses with the intention of enhancing access, inclusion and equity.
- Requires direct instruction to ensure learners know how to use it to support their individual learning needs.

“Goals first; technology second” is the idea that the use of technology should never override learning outcomes or come before goals and learner needs (Black & Moore, 2019, p. 66). Technology should always be viewed as a support for teaching and learning, not the focus of a course or lesson.

UDL and the Learning Management System

Using a learning management system (LMS) to support UDL implementation is a great example of Black and Moore's "joint initiative" idea (2019, p. 57). Using the LMS and implementing UDL is a symbiotic relationship: Embedding UDL in the LMS makes courses more inclusive and equitable to diverse learner populations while increasing uptake of technology tools that support Mohawk College's Digital Learning Strategy.

Canvas

The Learning Management System (LMS) currently in use for Mohawk College specific courses and programs is Canvas by Instructure. Canvas was selected as the college's LMS in 2019 because of its extensive features and ability to meet the needs of Mohawk's diverse learner population. Courses that are shared across the Ontario higher education sector, like OntarioLearn, use D2L by Brightspace as their LMS. The *UDL Today* research project LMS audit focuses on Canvas.

Mohawk College has customized Canvas to meet its specific teaching and learning context. As part of this customization the LMS has been rebranded as "MyCanvas". The *UDL Today* LMS audit content is based on the customizations made to date, including software tools that have been purchased separately and integrated into MyCanvas.

Delivery Modalities

Mohawk College currently offers program and course delivery in the following modalities. They are defined as:

- Hybrid learning
 - "Hybrid delivery includes a combination of on campus face-to-face and online delivery. Online components may include elements of synchronous and/or asynchronous learning" (*Delivery modalities*).
- HyFlex delivery
 - "HyFlex delivery is a multi-modal experience that includes options of face-to-face, online synchronous, and online asynchronous learning modes" (*Delivery modalities*).
- Face-to-Face delivery
 - "In face-to-face delivery, all teaching contact hours take place in a setting where the educator is physically together with the learners" (*Delivery modalities*).
 - In face-to-face delivery, MyCanvas is still used to guide "learners through course progression and provides additional opportunities to

interact with course content, the instructor, peers, submit assignments, receive feedback, and view grades” (*Delivery modalities*).

All of these modes rely on the LMS to deliver content and assess student learning.

Audit Purpose

The primary goal of performing an audit was to determine effective use of the LMS to reach institutional UDL and EDI goals. The audit was based on the principles that Mohawk College’s LMS use should:

- Be purposeful, intentional, and learner-centered regarding implementation and use of technology, with special attention paid to MyCanvas as it is central to all teaching and learning modalities.
- Leverage MyCanvas as a platform to support UDL targets regarding more inclusive, equitable and accessible education.
- Support educators to use MyCanvas tools to support course/program learning goals and outcomes, as well as enhance teaching and learning.
- Teach students how to use MyCanvas effectively to meet their learning needs and preferences.

In order to obtain the items listed above, we need to know what our LMS is capable of to ensure recommendations are purposeful and relevant to Mohawk College’s teaching and learning goals.

Audit

The content below outlines the functionality of MyCanvas as it pertains to the UDL Guidelines and the options outlined in that framework as they apply to Mohawk College's delivery modalities as they are defined above.

UDL Guideline	MyCanvas Tool/Function	UDL Application
Multiple Means of Engagement		
Provide options for recruiting interest	Discussion Tool	<ul style="list-style-type: none"> Creates a collaborative online space for class questions and answers, community building, and 'just in time' learning support.
	Modules Tool	<ul style="list-style-type: none"> Uses the prerequisites option to allow learners access to previous course content and activate prior learning. Reduces learner distractions and threats by providing a clear module structure that can include dates, prerequisites, requirements for completion and the option for students to mark as complete. Supports course content being delivered using multiple formats including HTML text, MS Word docs, Adobe PowerPoint, video, audio and images. Integrates other technologies into MyCanvas, allowing easy access to content from publishers and educational technology tools such as Kaltura for media, and H5P for interactive activities.
	Import Course Content	<ul style="list-style-type: none"> Allows for content from prerequisite courses to be copied into the next course allowing students to view it as needed to support new learning. Allows learners access to course content even after a course has ended so they are able to review previous course materials as/if needed.
	Notification Tool	<ul style="list-style-type: none"> Enables features and notifications that can be turned on/off by learners, thus allowing them control over how they interact with some course elements.

UDL Guideline	MyCanvas Tool/Function	UDL Application
		<ul style="list-style-type: none"> Allows learners control over their MyCanvas environment through notification features such as: automatic closed captioning, underlining links, opening 'to do' items in a new tab, changing the view of the MyCanvas dashboard, nicknaming course cards and assigning a colour to them, assessment due date notifications, etc.
	Integrations	<ul style="list-style-type: none"> Provides learners quick and easy access to their files through the Office365 integration. Supports educators to create Office 365 assignments that they can then share, as a template or document, with learners for completion. Provides educators access to a variety of multi-media/content integrations which include Kaltura, YouTube, ThingLink, Nearpod, LinkedIn Learning and publisher content allowing them to present engaging content in a variety of ways.
Provide options for sustaining effort and persistence	Quiz Tool	<ul style="list-style-type: none"> Allows educators to provide additional time or unlimited time on all online quizzes, tests and exams.
	Rubric Tool	<ul style="list-style-type: none"> Assists educators to build and attach rubrics to course assignments which allows learners to view assessment expectations. Encourages educators to provide a rubric that breaks down larger assignments into smaller, more manageable portions.
	Organization Applications	<ul style="list-style-type: none"> Supports educators to be explicit regarding course/assessment/learning goals and objectives by allowing educators to post and share information in multiple places and formats.
	Commons Tool	<ul style="list-style-type: none"> Encourages the use of templates, which are openly available in the MyCanvas Commons, that can be easily implemented and provide consistency across courses. Promotes the use of templates to provide common and important college information, such as how to access technical support, Mohawk

UDL Guideline	MyCanvas Tool/Function	UDL Application
		<p>policies and procedures, access to other resources such as the Library and Student Services with less effort for educators.</p> <ul style="list-style-type: none"> • Supports educators to share resources across courses through the MyCanvas Commons, which is a system wide tool for sharing resources with Mohawk College educators.
	Pages Tool	<ul style="list-style-type: none"> • Allows educators to create HTML Pages that, if needed, can be edited by learners allowing them to crowdsource lecture notes.
	SpeedGrader	<ul style="list-style-type: none"> • Supports educators to provide multiple ways for learners to receive feedback. • Assists educators to provide prompt and comprehensive feedback through the ability to mark-up work, provide written comments, audio comments and/or video comments.
Provide options for self-regulation	Calendar Tool	<ul style="list-style-type: none"> • Allows learners to see an amalgamated view of all course assessment activities to support their project planning and time management.
	Rubric Tool	<ul style="list-style-type: none"> • Encourages the use of rubrics in support of project planning and ongoing assignment management.
	Modules Tool	<ul style="list-style-type: none"> • Allows educators to design modules that require completion of tasks, which provides learners with a visible cue to easily track their completed and uncompleted tasks.
	Dashboard	<ul style="list-style-type: none"> • Helps learners to see what activities they have coming up through the use of a visible To-Do list on the student's dashboard.
	Announcement Tool	<ul style="list-style-type: none"> • Assists educators to support the development of self-regulation skills by issuing reminders of course commitments and learning requirements.
	Discussion Tool	<ul style="list-style-type: none"> • Encourages learners to reflect and share learning via discussion posts.

UDL Guideline	MyCanvas Tool/Function	UDL Application
		<ul style="list-style-type: none"> Supports crowdsourcing lecture notes, where learners can access notes from other learners to improve their own note taking skills and ensure they have accurate study notes.
	Reflection Tools	<ul style="list-style-type: none"> Creates opportunities for learners to check their own knowledge through the Quiz tool. Allows educators, through the H5P integration (mentioned previously), to create and post interactive formative assessment activities to help learners critically reflect on their learning.
Multiple Means of Representation		
Provide options for perception	Modules Tool	<ul style="list-style-type: none"> Encourages educators to post and share content in multiple formats.
	Integrations	<ul style="list-style-type: none"> Supports educators to present engaging content in a variety of ways, including multi-media/content integrations include Kaltura, YouTube, ThingLink, Nearpod, LinkedIn Learning and publisher content.
	Kaltura Capture	<ul style="list-style-type: none"> Aids educators to more easily provide multimedia content using Kaltura Capture, which allows them to edit videos by adding chapters, hotspots and creating video quizzes.
	Customization	<ul style="list-style-type: none"> Allows for customization of the online course display to meet individual learner needs and preferences including changing the page contrast, underlining links, disabling some animations and notifications, and auto-showing captions. Allows educators and learners magnify content, as MyCanvas is scalable.
	ReadSpeaker	<ul style="list-style-type: none"> Allows html pages, including the LMS layout and any HTML pages created by educators, to be read aloud through the integrated ReadSpeaker text-to-speech.

UDL Guideline	MyCanvas Tool/Function	UDL Application
	Microsoft's Immersive Reader	<ul style="list-style-type: none"> Provides all users the ability to view, read and listen to content on a page across the MyCanvas environment. Offers learners with a robust reading experience that takes content on a page and displays it in plain text for easier readability. Allows learners to adjust settings related to text size/font, grammar options and reading preferences.
Provide options for language and symbols	Pages Tool	<ul style="list-style-type: none"> Allows a glossary of key terms to be created to provide learners easy access to commonly used phrases, acronyms and symbols.
	Modules Tool	<ul style="list-style-type: none"> Supports the creation of robust content options through a variety of external tool options (e.g., Publisher content, Open Educational Resources, H5P activities, YouTube videos etc.).
Provide options for comprehension	Discussion Tool	<ul style="list-style-type: none"> Encourages learners to collaborate and reflect on their learning to show comprehension through discussion posts and/or facilitated online discussions.
	Quiz Tool	<ul style="list-style-type: none"> Allows educators to create a variety of question types outside of the standard multiple choice and true/false questions (e.g., essay questions, file upload, fill in the blank and stimulus) supporting educators to check learner comprehension.
	Assignments Tool	<ul style="list-style-type: none"> Supports learners to submit assessments in a variety of ways including text, video, audio and images so they can better demonstrate they have met the course learning outcomes.
	H5P Integration	<ul style="list-style-type: none"> Supports educators to create learning activities to be used as practice or low-stakes formative assessment.
	Modules Tool	<ul style="list-style-type: none"> Allows educators to add resources to deepen learning, including importing OER content from Pressbooks to help enrich the learning

UDL Guideline	MyCanvas Tool/Function	UDL Application
		environment and to prevent learners from having to leave the LMS to access an online course textbook.
Multiple Means of Action and Expression		
Provide options for physical action	Assignments Tool	<ul style="list-style-type: none"> Allows learners to submit assessments in a variety of ways, including text, video, audio and images supporting them to demonstrate their knowledge in the way that is best for them.
	Assistive Technologies	<ul style="list-style-type: none"> Supports the accessibility needs of all users through integrated assistive technologies, including ReadSpeaker, DocReader and Microsoft's Immersive Reader.
	Discussion Tool	<ul style="list-style-type: none"> Encourages learners to participate in online course discussions using a variety of methods, these include text, video, images and audio. Allows educators to facilitate discussions to engage learners in online communication and collaboration.
	Templates	<ul style="list-style-type: none"> Encourages educators to include multiple ways for learners to actively participate in the course using prompts within the templates. Urges educators to use the Announcements tool to share information and reminders with learners. Links educators to information on how to write course navigation instructions.
	Pages Tool	<ul style="list-style-type: none"> Allows educators to create supportive HTML pages, such as an FAQ page or glossary page, with the ability for learners to edit and contribute. Encourages educators to write course navigation instructions on an HTML page within a course information module.
Provide options for expression	Announcements Tool	<ul style="list-style-type: none"> Provides an additional way for educators to communicate with and remind learners about important course information.

UDL Guideline	MyCanvas Tool/Function	UDL Application
and communication		<ul style="list-style-type: none"> Encourages educators to use the Announcements tool to share time sensitive information and reminders with learners.
	Discussion Tool	<ul style="list-style-type: none"> Allows learners to use a variety of methods to discuss course concepts and topics, including text, video, images and audio.
	Templates	<ul style="list-style-type: none"> Urges educators, through a designated section in the templates, to include multiple ways for learners to connect and the approximate time it will take to receive a response.
	Groups Tool	<ul style="list-style-type: none"> Provides learners a private space to collaborate, communicate and plan course work.
Provide options for executive functions	Modules Tool	<ul style="list-style-type: none"> Allows educators to set prerequisites and requirements to guide learning and scaffold challenging content. Supports educators to require learners to select 'mark as done' upon completion of module content to help them track their own work and progress through the course. Provides a clear module structure that supports educators to present information and resources in a clear way.
	Assignments Tool	<ul style="list-style-type: none"> Encourages educators to create multiple smaller assessment types in order to chunk or scaffold larger assignments. Assists learners to organize assignment elements and help keep them on track.
	Pages Tool	<ul style="list-style-type: none"> Supports the writing of course navigation instructions which provides learners with explicit information regarding how to work through the course in an ideal way. Educators are encouraged to include course expectations, quickly links to key information and offer direction regarding how to proceed through the course as part of the navigation instructions.

UDL Guideline	MyCanvas Tool/Function	UDL Application
	Announcements Tool	<ul style="list-style-type: none"> Provides an additional way for educators to remind learners of upcoming assessment dates and support their time management and organization skills.
	Notifications	<ul style="list-style-type: none"> Urges educators to set automatic or pre-set notifications to help keep learners on track. Provides automatic notifications in the learner 'to-do' list, as well as a list of up upcoming tasks to support executive function skill development. Aids learners to also keep track of their activities by adding tasks to their personal MyCanvas Calendar.

Notes on Accessibility Features in MyCanvas

While UDL is distinct from the accessibility requirements of the Accessibility for Ontarians with Disabilities Act (AODA), ensuring that content and courses are accessible helps to ensure that they are also equitable and inclusive for all learners. MyCanvas includes a built-in accessibility checker for all pages created using the rich content editor. The checker supports educators by flagging accessibility issues and provides recommendations to correct errors.

Summary

The LMS Audit for the *UDL Today* research study has identified tools and functions that can support Mohawk College to be intentional and learner-centered in its use of technology. Leveraging MyCanvas for UDL implementation will make learning more equitable and inclusive by encouraging educators to use the tools and functions identified to enhance teaching and learning at Mohawk College. These tools can support learners in their use of the LMS to meet their individual needs.

Further, Mohawk College is committed to UDL implementation to support its equity, diversity and inclusion (EDI) goals (*Equity, Diversity and Inclusion Action Plan* 2018). UDL has the capacity to support all learners in all delivery modalities. The use of UDL in hybrid and HyFlex courses is essential due to their unique delivery nature. The LMS Audit clearly outlines the tools and functions currently available in MyCanvas that support UDL implementation to meet the College's EDI targets.

The LMS Audit is one part of the *UDL Today* research project. The data gathered throughout the audit process provides valuable information about what is possible within the LMS for both educators and learners. The data gathered throughout the LMS Audit, in support of the *UDL Today* research study, identifies the importance of MyCanvas to aid institutional implementation and advancement of UDL to create more inclusive, equitable and accessible learning spaces for Mohawk College's diverse learners.

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