OUSA

Ontario Undergraduate Student Alliance

POLICY PAPER

Tech-Enabled Learning

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ABOUT OUSA

OUSA represents the interests of 160,000 professional and undergraduate, full-time and part-time university students at nine student associations across Ontario. Our vision is for an accessible, affordable, accountable, equitable, and high quality post-secondary education in Ontario. To achieve this vision we've come together to develop solutions to challenges facing higher education, build broad consensus for our policy options, and lobby government to implement them.

The member institutions and home office of the Ontario Undergraduate Student Alliance operate on the ancestral and traditional territories of the Attawandaron (Neutral), Haudenosaunee, Huron-Wendat, Leni-Lunaape, Anishnawbek, and Mississauga peoples.

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OUSA policy papers are written by students to articulate student concerns and offer student-driven solutions for accessible, affordable, accountable, equitable, and high quality post-secondary education in the province.

To support our policies and ensure that we are effectively representing undergraduate and professional students at Ontario's universities, students and student groups from each of our nine member institutions were consulted to provide guidance and feedback on the principles, concerns, and recommendations contained herein.

OUSA would like to thank students and student groups from Brock University, Laurentian University, McMaster University, Ontario Tech University, Queen's University, Trent University Durham GTA, the University of Waterloo, Western University, and Wilfrid Laurier University for their valuable contributions to this policy paper.

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GLOSSARY

***Digital Badges (aka Open Badges)*:** Electronic symbols [that can be, but not always] used as micro-credentials to document achievement or skills mastered such as course completion, professional development participation, or training completion.[1]

***Distance Education*:** No classes are held on campus and all instruction is conducted at a distance. Remote learning is the tenet of distance education and it encompasses both online learning and other modes of delivering instruction and course materials at a distance.[2]

Emergency Remote Teaching: A temporary shift of instructional delivery to an alternate delivery mode due to crisis circumstances [which] involves the use of fully remote teaching solutions for instruction or education that would otherwise be delivered face-to-face or as blended or hybrid courses and that will return to that format once the crisis or emergency has abated.[3]

Hybrid Learning: Also referred to as blended learning, hybrid courses or programs are intentionally designed to combine both online and in-person instruction.[4]
inter-institutional access

***Learning Management Systems (LMS)*:** Online systems or platforms that provide centralised places to create, deliver, and manage a course or learning module. LMS contain standard sets of tools that can be accessed by students anytime, anywhere, and via multiple devices.[5]

***Massive Open Online Course (MOOC)*:** Free, easily accessible, completely online courses…don't always lead to formal qualifications…usually no entry requirements.[6]

***Online Learning*:** A form of distance education where the primary delivery mechanism is via the Internet. Instruction is delivered synchronously or asynchronously and the course and materials are "intentionally designed in advance to be delivered fully online.[7]

Open Educational Resources: Teaching, learning, and research resources that, through permissions granted by their creator, allow others to use, distribute, keep, or make changes to them.[8]

Open University Data: an array of data about [universities'] work, operations, and finances, including financial reports and comprehensive data, such as enrolment, degrees awarded and tuition, available to the public.[9]

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[1] Jill Stefaniak and Kimberly Carey, "Instilling purpose and value in the implementation of digital badges in higher education," *International Journal of Educational Technology in Higher Education* 1 6, no. 44 (2019), https://doi.org/10.1186/s41239-019-0175-9; see also https://ecampusontario.pressbooks.pub/techinthecurriculum/chapter/digital-badges-and-microcredentials/
[2] Nicole Johnson, *Digital Learning in Canadian Higher Education in 2020: Ontario Report* (Canadian Digital Learning Research Association, 2020), 6.
[3] Ibid, 7.
[4] Ibid.
[5] Sandra Howell and Brian O'Donnell, *Digital Trends and Initiatives in Education: The Changing Landscape for Canadian Content* (Toronto, ON: Association of Canadian Publishers, 2017), 3.
[6] "What is a MOOC?," *FutureLearn*, March 11, 2016, https://www.futurelearn.com/info/blog/what-is-a-mooc-futurelearn.
[7] Nicole Johnson, *Digital Learning in Canadian Higher Education in 2020: Ontario Report*, 6.
[8] BCcampus, "What are Open Educational Resources?," *OpenEd*, accessed December 2, 2021, https://open.bccampus.ca/what-is-open-education/what-are-open-educational-resources/.
[9] "Open Data - Ontario'S Universities," Ontario's Universities, September 24, 2024, https://ontariosuniversities.ca/open-data/.

Technology: Methods, systems, and devices which are the result of scientific knowledge being used for practical purposes.[10]

Technology-enabled learning: The adoption of technology in order to promote a better classroom experience for students or increase e-learning pedagogical activities.[11]

[10] Colins Dictionary, “Definition of 'technology'”, *Collins Dictionary,* n.d., https://www.collinsdictionary.com/dictionary/english/technology
[11] Lutfiyya Dhalla, “Technology-enabled and online learning,” eCampusOntario, https://www.ecampusontario.ca/knowledge-base/technology-enabled-and-online-learning/

EXECUTIVE SUMMARY

In the five years since the onset of the COVID-19 pandemic, post-secondary education has undergone significant transformation. As online learning has become a central component of this new educational landscape, students have encountered a range of challenges adapting to digital platforms and remote instruction. Drawing from their experiences, they highlight key issues and offer the following recommendations to enhance the effectiveness of technology-enabled learning.

THE PROBLEM

Institutional Inaccessibility

Students have identified that those with disabilities disproportionally face barriers to equitably accessing digital content and obtaining necessary accommodations. In particular, recorded lectures often lack the necessary quality to ensure legible lecture materials and fully automated closed captions. Furthermore, as educational technology continues to evolve, students are increasingly concerned that many required third-party platforms and tools are not fully accessible for those with disabilities.

In addition to accessibility concerns, students from northern, rural, and Indigenous communities face unique and compounding challenges. These include increased financial barriers for reliable internet access, a lack of grants for internet installation in these areas, high shipping or travel costs to acquire required technology for online learning, and a lack of local access to adequate technology.

More broadly, many students struggle to afford the necessary technology to make online learning a viable option for them. This may be due to the lack of information prior to enrolment about required technology and/or the mandated use of high-cost third-party resources in courses.

Post-Secondary Unaffordability

In recent years, the cost of technology and software has increased yet students have not seen an increase in financial support. Students have continuously called for more affordable resources to be utilized in classrooms. Post-secondary institutions' campuses and online libraries and bookstores do not offer affordable alternatives to digital resources unlike their physical counterparts.

Lack of Accountability

Prospective students should have all available information such as learning outcomes of their degree of choice or student experience data when choosing which post-secondary institution to attend. University data such as research reports, spending reports, and information on students' needs is often unavailable or difficult to access. This creates a barrier for students as this information can be incredibly beneficial in supporting a student's decision in choosing what university they would like to attend. Additionally, this creates a barrier for sector professionals to improve the post-secondary experience.

Currently, there are no provincial standardized requirements for institutions to release their data publicly, which leads to inconsistencies in data quality and availability across the post-secondary sector. Similarly, there is a lack of standardization and quality control in the data collection process, which compromises the integrity and usefulness of public data. Students believe that Ontario's existing data collection practices are insufficient to meaningfully assess its digital learning objectives.

Inadequate Privacy, Intellectual Property & Emerging Technology Provisions

Students should have access to course content in a variety of formats. Unfortunately, content is often limited due to instructors' concerns about unauthorized redistribution of their intellectual property

influencing their willingness to post course content online. In some cases, student accommodations pertaining to course content may be denied due to instructors' concerns about intellectual property rights infringement recording of their lecture.

Students have identified concerns regarding the current online proctoring software. Several groups of students are disproportionately affected by barriers for online proctoring. This includes racialized students who are often not detected by inequitably developed facial recognition features and individuals with religious headwear who may be pressured to remove their headwear to access their assessment. Additionally, online proctoring software often restricts movement and the use of accommodation aids which is discriminatory towards students with disabilities. Furthermore, there is a lack of protections for students against harassment or other privacy violations enacted by proctoring staff due to third party employees falling outside of university's jurisdiction. Many instructors do not offer alternatives to proctoring software and/or make applying for alternative assessments intentionally unreasonable to dissuade students from accessing them. Despite there being known methods of discouraging academic dishonesty in online courses that are much less invasive and protect students' dignity yet, instructors and institutions continue to use proctoring software.

Students have raised concerns about artificial-intelligence (AI) use in the classroom. There is a distrust amongst educators regarding the implications of AI on learning outcomes in post-secondary education, leading to a resistance in deepening understanding. This leads to many institutions lacking enforceable guidelines for the integration of AI in the classroom.

Due to a lack of involvement from public institutions to design and develop their own educational tools, there is an increased reliance on external organizations who may prioritize profit and marketability to institutions/instructors over student learning and experience. There is a growing risk that educational tools that use AI may undermine educational equity principles which unintentionally reinforce biases and create inequitable learning experiences, making it difficult for students and instructors to critically engage with these tools.

Online Courses Inefficiencies

All students should be equally supported in achieving the same learning outcomes in an online course as they would in a traditionally-delivered or hybrid course. However, barriers to learning arise for online courses. Students may experience difficulties engaging with online courses due to a course's technological requirements. Current quality assurance criteria for changing a course's mode of delivery to online does not require appropriate consideration of instructional support needs or student accessibility needs.

Since the initial emergency transition to online learning resulting from the COVID-19 pandemic, there is a greater prevalence of virtual courses without in-person alternatives which can serve as a barrier to success for students who do not have the means to fully participate in online learning. Additionally, despite the growth of literature on the pedagogy of online learning, gaps persist in instructors' ability to effectively facilitate online courses. Similarly, online course formats and pedagogy lag behind the pace of rapid technological change. Universities may lack the resources to effectively support the design, development, and delivery of online courses. The current Strategic Mandate Agreement and performance-based funding framework is not conducive to pedagogical innovation.

In recent years, unexpected disruptions have highlighted vulnerabilities in higher education systems, particularly in how institutions handle sudden shifts in instructional delivery. Students have raised concerns about emergency transitions to online learning for post-secondary institutions. Emergency transitions to remote learning generally do not allow for adequate preparation time to shift an otherwise in-person course online, affecting the quality of education students receive. They also may present financial challenges/barriers to providing adequate logistical and technological support for instructors.

Furthermore, a course's technological requirements may cause unexpected barriers to student's full participation, which are likely to be exacerbated in circumstances where emergency transitions to online learning have occurred. While all students may be harmed by an emergency transition to online, students in programs that require an in-person format to build certain skills may be disproportionately affected.

Underutilization of Non-Degree Credentials

Non-degree credentials such as micro-credentials present unique opportunities for students to further their education. However, micro-credentials remain underrecognized by employers and scarcely offered for undergraduates by many post-secondary institutions, due to a perceived lack of rigour and quality associated with them, limiting their usefulness to students. Students have raised concerns about the lack of regulation around micro-credentials which leaves them vulnerable to exploitative programs that are of low quality or fraudulent. Also, there is a lack of adequate research on the effectiveness of micro-credentials which disincentivizes both students and employers from engaging with them.

Underutilization of Open Educational Resources

The rising cost of educational materials, such as textbooks, imposes significant financial barriers for students, particularly low-income students, when pursuing post-secondary education. This leads to students often dropping courses, choosing not to enroll, or changing their course selection.

Open educational resources (OERs) have proven to be an effective approach to address student concerns on the affordability of textbooks and other forms of courseware. However, instructors at post-secondary institutions are uninformed about the effectiveness of OERs, and unaware of their availability through the eCampusOntario Open Library platform, leading to underutilization. This is due to the lack of sufficient incentives from the provincial government to post-secondary institutions or faculty to support the wide use and adoption of OERs.

Post-secondary institutions do not adequately incentivize faculty to commit to the development and implementation of OERs at their institutions. Students have identified that teaching instructors are more likely to require textbooks they have authored as course materials in order to maximize their personal profits, becoming less inclined to adopt OERs. Additionally, there is a perception and associated stigma that OERs are of lower quality than traditional educational resources, which acts as a barrier to OER adoption, development, and adaptation.

When it comes to OER data collection, there is currently no standardized reporting structure for institutions to measure the usage, concerns, and success rates (e.g., financial impact) of OERs. As all OER adoption reporting is voluntary for institutions and there is no centralized database, there are gaps in eCampusOntario' ability to effectively collect and publish data to improve the efficacy of OERs.

Underutilization of Online Learning Materials

Online learning tools are a valuable part of post-secondary education, offering the potential to improve both accessibility and quality when used consistently and effectively. They allow for greater flexibility, can be more cost-effective, and support personalized learning experiences for students. However, despite these advantages, they also come with several challenges and concerns. Online learning tools are often not developed or appraised to meet the same standards of quality as traditional, physical learning tools. Inconsistencies in the development and use of online learning tools reduce educational quality and create accessibility barriers for students. They are also not always compatible with common assistive technologies and devices, creating accessibility barriers for students. Similarly, accessibility features associated with online learning tools are often not communicated to students in a clear and timely fashion.

Learning management systems (LMS) are software applications generally used to administer courses and typically have integrated components that track, document, report, and/or automate various aspects of course or program delivery. Although LMS are intended to serve as dynamic and immersive learning environments, they are often used primarily as basic content delivery platforms. This limited use is frequently due to faculty and instructors lacking the technical skills and institutional support necessary to fully leverage LMS capabilities, which ultimately diminishes their potential to enhance the quality of postsecondary education. Additionally, LMS are implemented to varying degrees and in inconsistent ways within institutions, leading to confusion and barriers for students that negatively affect learning experiences. In Ontario, proprietary LMS represent a large portion of LMS usage, introducing an added financial burden for students and further complicating equitable access to education.

Lack of Teaching Skills & Instructor Support

All instructors and faculty should be confident in their ability to effectively and consistently use technology-enabled learning systems, tools, and resources to help deliver high-quality, accessible education and ensure equitable learning experiences for all post-secondary students. Unfortunately, instructors and faculty often lack the technical skills and support needed to effectively use technology-enabled learning systems, creating barriers to accessible and equitable education. Additionally, instructors and faculty are unfairly expected to develop and implement technology-enabled learning systems, without sufficient institutional support. Students have identified that educators who lack education on emerging technology are often more distrustful and punitive towards students due to fear regarding their capacity. Similarly, many instructors and faculty lack adequate training from their institutions on how to address the ethical concerns associated with AI or how to effectively use artificial intelligence in course design and teaching.

Inadequate Infrastructure

Students have raised concerns about not all classrooms in post-secondary institutions being equipped with the necessary digital infrastructure and accessible technology to support the diverse needs and/or disabilities of students. As a result of the deferred maintenance backlog in Ontario's post-secondary sector, institutions lack the capital funding to prioritize technological integration. Post-secondary institutions are also not incentivized to create or expand curriculum that integrates technology-based learning, digital resources, and technology labs, leading to a diminished quality of education compared to fully in-person formats. Consequently, institutions have been unable to adequately support instructors and students with the technology and in-person assistance needed to facilitate hybrid learning options.

THE SOLUTION

Access to Content

In response to the concerns about equitable access to content, the provincial government should provide post-secondary institutions with envelope funding to hire or train staff in accessible pedagogies to provide more accessible course delivery technology. Similarly, the provincial government should provide institutions with envelope funding for the purpose of acquiring or making more widely available accessible technology. Students with disabilities face unique challenges in accessing course content. Students recommend that the Ministry of Colleges, Universities, Research Excellence and Security (MCURES) mandate training on accessibility requirements in the online classroom environment for faculty and supporting employees to ensure each student has equitable access to learning materials.

In 2022, the Postsecondary Education Standards Development Committee released their report outlining recommendations that should be made within the post-secondary sector to improve accessibility for all students. Of note, we believe the Government of Ontario should implement recommendation 68 "each postsecondary institution must develop and make publicly available a plan to seamlessly include

accessibility in the digital learning and technology used throughout the academic journey of all students with disabilities." In addition, the Government of Ontario should implement recommendation 69 "the Digital Learning and Technology plan must be created in consultation with a diverse body of stakeholders that includes students with disabilities." To complement these 2 recommendations, MCURES should enact regulation which requires institutions to ensure that classroom documents and third-party resources employed in course delivery meet the Accessibility for Ontarians with Disabilities Act (AODA) standards for web content.

Many rural and northern students face financial barriers to securing reliable internet access. To support these students, the provincial government should expand the Ontario Student Assistance Program (OSAP) technology grant to incorporate the cost of internet coverage for the duration of the academic year. Students further urge the provincial government to continue the funding and expansion of independent Contact North Online Learning Centres supporting greater online and remote access for students in northern and rural areas.

To address students' concerns about access to reliable technology, MCURES should provide grant funding to post-secondary financial aid offices earmarked to support students who lack the resources to purchase appropriate technology. In addition, MCURES should create best practices for implementation of policies in accordance with Bill 166's provision for transparency with associated post-secondary costs.

Furthermore, the provincial government should implement provisions within OSAP funding calculations that take into account the unique technological requirements of specific programs. Similarly, the provincial government should amend the computer allowance within OSAP to provide students with a grant of up to $1500 to use during their degree.

Improving Post-Secondary Affordability

To improve the affordability of post-secondary education and resources, the provincial government should implement research and development grants for post-secondary institutions to develop and integrate innovative hardware, software, or OERs. This investment will enhance the quality of education and contribute to reducing course fees for students. In addition, the provincial government should continue to support institutions through the Virtual Learning Strategy for Post-Secondary Education, providing additional funding through needs-based institutional grants to offset the costs of technology associated with program content. MCURES should revise the Tuition Fee Framework and Ancillary Fees Guidelines to establish clear limitations on student costs related to third-party technologies. Furthermore, the government should task the Higher Education Quality Control of Ontario (HEQCO) with researching the rising cost of technology associated with post-secondary education as well as the impacts and successes of government loans and research and development grants (such as the Virtual Learning Strategy grant) effectiveness in reducing financial barriers.

Improving Accountability

Prospective students should have access to relevant information such as, learning outcomes, enrolment data, institutional performance metrics, to inform their post-secondary institution decision. To achieve this, the provincial government should enhance its data collection procedures to track and evaluate the impact of online learning on student outcomes, such as graduation rates, skills acquisition, and postgraduate employment. Similarly, MCURES should mandate that all post-secondary institutions annually disclose online course completion rates, student satisfaction scores, and accessibility metrics via HEQCO's Open Data Inventory to improve public access and accountability.

Students further recommend that the provincial government task HEQCO to expand their Open University database to generate and maintain consistent measures of data across post-secondary institutions. In addition to the provincial government working in collaboration with the Council of Ontario Universities

(COU) to develop a publicly available uniform data collection system for learning outcomes and student experience.

In response to concerns around data collection, MCURES should establish clear guidelines for data collection to ensure the integrity of publicly available data. As well, MCURES to create a taskforce that will establish a standardized data collection framework to be employed across all post-secondary institutions provincially.

Improving Intellectual Property Rights & Ownership of Materials

Students should have access to lecture material for the duration of the course in a manner that does not compromise instructor ownership of material. To achieve this, MCURES should commission the Ontario Universities Council on Quality Assurance (OUCQA) with surveying institutions to produce a comprehensive framework for an intellectual property amendment to the Ministry of Training, Colleges and Universities Act. Additionally, the provincial government should commission HEQCO in consultation with faculty and instructors to create a best practice guide to avoiding/mitigating concerns related to intellectual property theft.

In response to students' concerns with proctoring software, MCURES should mandate that universities commit to using the most minimally invasive software practices for ensuring academic integrity during assessments, wherever possible. To address accessibility concerns, MCURES should mandate policies pertaining to permitted uses of accommodation aids during online-proctored exams for students with disabilities. Additionally, MCURES should mandate that institutions ensure that online proctoring standards mirror in person proctoring exam regulations for typical student behaviour and environmental interferences. To protect all students, MCURES should require institutions to educate instructors of the risks and possible harms of proctoring software, and alternative assessment methods that do not require proctoring software. Along with MCURES mandating that all post-secondary institutions establish clear and accessible policies regarding alternative assessment methods for students who cannot use proctoring software.

Tech-enabled learning has the potential to improve the accessibility, affordability, and quality of education for all Ontario students. Students believe that with emerging technologies, post-secondary education can be reimagined to be more inclusive, innovative, and equitable. To support this, MCURES in consultation with organizations such as eCampusOntario, should develop a task force of students, faculty experts and (innovators) to create provincial guidelines for ethical integration of generative AI in post-secondary education. In addition, MCURES should mandate that each post-secondary institution must develop and publish a strategy to improve the accessibility of digital learning tools and technology to meet AODA standards to be updated on a five year cycle basis.

To further enhance digital inclusion, the provincial government should contribute more funding to the virtual learning strategy to support institutions in implementing and maintaining accessible digital learning environments for students with disabilities. The provincial government should also provide grant funding for institutions developing and expanding inter-institutional access to digital learning tools and platforms, improving collaboration and reducing duplication of costs across the sector.

To ensure responsible implementation of new technologies, MCURES should mandate that any AI-powered educational tools used in post-secondary institutions must be independently audited by a panel including student representatives to assess their fairness, transparency, data security, IP protection, and alignment with educational equity principles. Furthermore, the provincial government should expand grant funding for public institutions design and development of educational tools, reinforcing Ontario's leadership in ethical, accessible, and student-centered digital learning.

Improving Online Course Experiences

All students should expect support in achieving the same learning outcomes in an online course as they would in an in-person or hybrid course. To achieve this, OUCQA should amend the Protocol for Major Modifications to require assessment of existing criteria for changing a course from in-person to online. Furthermore, the provincial government should provide envelope funding to institutions to support institutional strategies that enhance students' ability to engage with online courses, such as technology loan programs.

To advance pedagogy at Ontario's post-secondary institutions, the provincial government should task HEQCO with the establishment and continual review of best-practice recommendations for the design, development, and delivery of online courses. To complement this, the provincial government should provide envelope funding to post-secondary institutions to financially assist with innovation and experimentation for online learning in post-secondary environments. Similarly, the provincial government should allocate grant funding for institutional bodies supporting the design, development and delivery of online courses. Lastly, students recommend that, in consultation with institutions, MCURES alter Strategic Mandate Agreements, including performance-based funding frameworks, to include specified metrics for assessing pedagogical innovation within online and technology integrated learning.

In preparing for any future emergency transitions to online learning, the provincial government should create reserve grant funding for institutions to facilitate an effective shift to remote course delivery in the case of future emergency transitions to online learning. Students also recommend that the provincial government task HEQCO with creating a proactive best practice list for institutions to reference in times of emergency transitions to online learning. Furthermore, MCURES should mandate that institutions create and regularly review proactive planning that addresses protocol for emergency transitions to online learning.

Improving Non-Degree Credentials

To support students' learning beyond traditional post-secondary degrees, MCURES should work with institutions to improve the promotion of the eCampusOntario Micro-credential library and student awareness of micro-credentials and their effectiveness. To inform students on the validity of micro-credentials, MCURES should commission eCampusOntario to undertake a continuous data collection process to measure their effectiveness in improving employment outcomes. To complement this, the provincial government should enforce an accreditation and quality control system for micro-credentials using the eCampusOntario and Postsecondary Education Quality Assessment Board (PEQAB) frameworks to ensure consistency, transparency, and credibility.

Promoting Open Educational Resources

To support the sustainable adoption of OERs, the provincial government should incentivize institutions through OER adaptation and development grants that encourage the creation of OERs, and replace expensive course materials with free and low-cost alternatives. The provincial government should also develop predictable funding for eCampusOntario to expand its OER library, prioritizing high-enrolment courses. In partnership with eCampusOntario, the provincial government should hold institutional forums with administrators and instructors across faculties to raise awareness of OERs, highlight their benefits, and answer outstanding questions. To further encourage adoption, the provincial government should mandate that institutions report the number of courses using OERs and their enrolment to eCampusOntario, on an annual basis, and offer monetary incentives when institutions reach a certain threshold. Additionally, envelope funding for post-secondary institutions should be expanded to help offset the high costs associated with the initial development of OERs, ensuring long-term savings and broader access for students.

To ensure the effective development and adoption of OERs across Ontario's post-secondary institutions, the provincial government must take a more active leadership role. First, it should develop quality assurance guidelines for OERs to aid in consistent standards for the development of resources. In addition, collaboration with key faculty stakeholders, such as the COU and the Ontario Confederation of University Faculty Associations (OCUFA), will be essential to gather and distribute qualitative and quantitative data on OER quality to institutions. Furthermore, the provincial government should increase funding to the eCampusOntario Open Library platform so as to improve upon its OER peer-review and adoption process.

To address concerns around OER metrics and data collection, the provincial government should provide funding for institutions that report data regarding both students' and faculty members' experiences with OERs to eCampusOntario in a standardized and measurable format in order to improve upon OER quality. To complement this, the provincial government should provide eCampusOntario with additional funding for the continued collection, analysis, and publication of institutional user satisfaction data as well as with distributing the findings to post-secondary institutions.

To support the creation and widespread adoption of OERs, the provincial government should provide post-secondary institutions with funding for OER adoption, adaptation and creation grants awarded to faculty who integrate or develop OERs, thereby facilitating OER uptake. In partnership with the OCUFA and the COU, the government should also develop meaningful incentives geared towards faculty for OER development. Further, the provincial government should work with COU to establish a best practice framework for incentivizing and recognizing OER contributions as a core element of academic innovation.

To strengthen institutional commitment, the creation and promotion of OERs should be embedded in Ontario's Strategic Mandate Agreements as a key metric of effective pedagogy and faculty innovation, linking performance-based funding to efforts that improve financial access to education. Finally, the provincial government should increase funding to eCampusOntario's Open library to improve upon its OER review process, digital resource editing capacity, and its diversity of texts.

Enhancing Accessibility of Online Learning Materials

With the growing reliance on online learning tools in post-secondary education, it is essential to ensure that these tools are accessible, effective, and consistently implemented across institutions. To address the concerns around the accessibility of online learning materials, the OUCQA, in partnership with eCampusOntario and Contact North, should develop best practices for the development, implementation, and quality appraisal of online learning tools with a focus on accessibility, effectiveness, and consistency within and across institutions. OUCQA should also integrate best practices and Universal Design Learning (UDL) standards concerning online learning tools into the Quality Assurance Framework used for Institutional Quality Assurance Processes. Similarly, MCURES should create and publish best practices, based on consultations with students and post-secondary institutions, on how post-secondary institutions should identify in advance and clearly communicate to students the accessibility features of the online learning tools needed to meet provincial AODA requirements. Furthermore, MCURES should fund and work with eCampusOntario and Contact North to publish accessible and effective digital literacy education programs for instructors and students in Ontario post-secondary institutions.

Open-source LMS are more cost-effective and adaptable than licensed, proprietary systems. Students recommend that, in partnership with eCampusOntario, Contact North, and the OUCQA, MCURES should enhance institutional capacity and knowledge on effective LMS use while developing quality standards and best practices for their selection and implementation. OUCQA should also integrate quality standards and best practices around LMS into the Quality Assurance Framework to ensure consistent application across Ontario post-secondary institutions. Lastly, MCURES, in collaboration with eCampusOntario and

Contact North, should encourage and provide technical support for the use of open-source LMS in post-secondary education.

Improving Teaching Skills & Instructor Support

Post-secondary institutions should be equipped with the necessary infrastructure and support systems to deliver comprehensive, high-quality training for faculty and instructors using technology-enhanced learning tools and platforms. To achieve this, the provincial government should provide special purpose grant funding to post-secondary institutions' teaching and learning departments to enhance the quality, effectiveness, and use of resources, tools, coaching, and training around technology-enabled learning offered to faculty, instructors, and staff. The provincial government should also provide institutions with funding for professional development programs focused on AI literacy, including its integration into course creation and ethical use, to empower instructors and address existing knowledge gaps. To further support these efforts, and following consultation with OCUFA and COU, MCURES should provide grants to post-secondary institutions for successful and widespread completion of the aforementioned dedicated and comprehensive certificate program by faculty and instructors. Similarly, MCURES should provide eCampusOntario and Contact North with funding to work with post-secondary institutions and stakeholders to launch an online and blended learning program for faculty and instructors.

Improving Digital and Physical Infrastructure

To better support students' use of technology within classrooms, the provincial government should increase funding to post-secondary institutions to improve classroom technology to align with recommendations from the Postsecondary Education Standards Development Committee AODA. Specifically, MCURES should establish a dedicated infrastructure grant for upgrading AV equipment and hybrid tech in aging classrooms, and prioritize institutions with pre-2000 buildings, as recommended in OUSA's 2021 Infrastructure Report and the AODA Postsecondary Education Standards. In addition, the provincial government should provide envelope funding to post-secondary institutions to cover the additional costs associated with offering accessible technological upgrades, platforms/software, and support staff personnel. The provincial government should also provide development grants to post-secondary institutions seeking to upgrade their technological infrastructure within technology and research labs.

INTRODUCTION

Over the past decade, post-secondary institutions have increasingly integrated technology into classrooms, using new and innovative tools to enhance teaching and learning. In the five years since the COVID-19 pandemic, Ontario's post-secondary education sector has undergone a significant transformation and received significant investment towards rapidly expanding its digital infrastructure and course offerings to accommodate remote and hybrid learning.

Most recently, in early 2025, the Ontario government announced a $228 million investment in postsecondary institutions to modernize their facilities and learning tools. This includes $10.5 million through the Training Equipment and Renewal Fund to help universities purchase equipment that enhances in-person or virtual learning, aligns with industry standards, and supports enrollment growth.

This five-year wave of investment and adaptation has reshaped the educational landscape, with online and hybrid course offerings expected to continue growing in response to student demand for flexibility. At the same time, institutions face ongoing challenges, including faculty burnout, uneven access to technology, and the need to strengthen equity, diversity, and inclusion practices across all learning modalities.

As learning becomes increasingly technology-driven, students have identified a range of gaps in the current system, which are outlined in this policy paper. The paper presents a series of recommendations that reflect the values and priorities of Ontario's undergraduate students. These recommendations are directed at the provincial government and sector stakeholders, with a strong emphasis on evidence-based policy.

It is evident that digital learning will remain a central feature of post-secondary education in Ontario. Looking forward, there is agreement that the sector will undergo significant change in the coming years, with many anticipating a markedly different post-secondary experience. While institutions have made considerable progress and students are increasingly seeking flexible, tech-enabled learning options, challenges persist. OUSA hopes that the policy recommendations presented here will be considered by the provincial government and that, together, we can work toward a more accessible, affordable, and high-quality university experience for students across the province.

ACCESSIBILITY

EQUITABLE ACCESS TO CONTENT

Principle: All students should have barrier-free access to the content provided within course components.

Principle: All students should be able to access and meaningfully engage with course content regardless of ability.

Principle: Students should have timely access to reliable captions and/or transcripts for their classes.

Concern: Students with disabilities disproportionately face barriers to equitably accessing digital content or obtaining necessary accommodations in a timely manner.

Concern: Recorded lectures often lack the necessary quality to ensure legible lecture materials and fully accurate automated closed captions, thereby hindering students' ability to effectively access course content.

Concern: Courses may require third party resources that are not fully accessible for students with disabilities.

Recommendation: The provincial government should provide post-secondary institutions with envelope funding to hire or train staff in accessible pedagogies to provide more accessible course delivery technology.

Recommendation: The provincial government should provide institutions with envelope funding for the purpose of acquiring or making more widely available accessible technology.

Recommendation: The Ministry of Colleges, Universities, Research Excellence and Security (MCURES) should mandate training on accessibility requirements in the online classroom environment for faculty and supporting employees to ensure each student has equitable access to learning materials.

Recommendation: MCURES should enact regulation which requires institutions to ensure that classroom documents and third-party resources employed in course delivery meet the AODA standards for web content.

Recommendation: The Government of Ontario should implement recommendation 68 in the Development of Proposed Post-Secondary Education Report "each postsecondary institution must develop and make publicly available a plan to seamlessly include accessibility in the digital learning and technology used throughout the academic journey of all students with disabilities."

Recommendation: The Government of Ontario should implement recommendation 69 in the Development of Proposed Post-Secondary Education Report "the Digital Learning and Technology plan must be created in consultation with a diverse body of stakeholders that includes students with disabilities."

As technological integration in education has proliferated in the last decade, access to digital spaces has become a necessity to equitable participation in post-secondary classrooms. Recent research indicates that a majority of Canadian universities are moving aggressively into blended and hybrid learning even outside of the influx of courses hosted entirely online; meaning it is likely at least some components of

each course will be online. The Canadian Digital Learning Research Associations annual pan-Canadian report found that 73% of respondents believed more courses would be hybrid in the next 24 months and 62% believed more would be fully remote[12] It is thus important that all students have barrier free access to the content provided within course components.

This includes, ensuring that all students have access to and are able to meaningfully engage with course content regardless of ability. The Higher Education Quality Council of Ontario (HECQO) found, while analysing the impacts of quick transitions to online learning after the onset of the COVID-19 pandemic, that shifts to utilizing a primarily digital environment for course completion has important ramifications for the accessibility of post-secondary education overall.[13] A primary concern with the influx of online learning integration is that students with disabilities disproportionately face barriers to equitably accessing digital content or obtaining necessary accommodations in a timely manner. The HECQO study specifically found that on average more students with disabilities reported experiencing challenges moving online in contrast to both their prior in-person learning experience and the online experience of those without disabilities. Importantly it also found that students who didn't require certain accessibility needs when pursuing primarily in-person studies sometimes faced challenges online that required accommodations.[14]

Just as more fully integrated online learning has often been a new terrain for students in the last five years, faculty and institutions have also sometimes had to learn to navigate new pedagogical methods for digital learning. It has been found that a lack of awareness among postsecondary educators as to what needs to be in place for fully accessible online learning has had tangible effects on course delivery.[15] As research has indicated, this has in some instances led to inconsistencies in the accessibility of course materials, even within the same school or faculty of study. It is accordingly recommended that MCURES mandate training on accessibility requirements in the online classroom environment for faculty and supporting employees to ensure each student has equitable access to learning materials. Beyond ensuring that current staff are kept knowledgeable on how to consistently incorporate accessible pedagogy, the large-scale integration of the digital landscape also provides opportunity to bring in professionals who are able to specialize in accessible innovation in this realm. The provincial government should then provide post-secondary institutions with envelope funding to hire or train staff in accessible pedagogies to provide more accessible course delivery technology.

Although recorded lectures have become a common pedagogical delivery choice for asynchronous classes, and even to provide accommodations for courses with in-person delivery, they often lack the necessary quality to ensure legible lecture materials and fully accurate automated closed captions. While many third party online platforms (i.e., D2L & Echo) that host the recording do provide options for generated closed captions, they are often unreviewed and unreliable. When surveyed by the CDLRA, students reported recorded lectures as the second most helpful digital learning tool behind learning management systems. As a tool that students find increasingly useful, it is important to ensure the accuracy is maintained for the accessibility of all students.[16] It is then paramount that students have

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[12] Nicole Johnson et al., "2024 Pan-Canadian Report on Digital Learning," *Canadian Digital Learning Research Association*, 2024, https://cdlra-acrfl.ca/wp-content/uploads/2024/12/2024-Pan-Canadian-Report_EN.pdf

[13] Jeffrey Napierala, Natalie Pilla, Jackie Pichette and Julia Colyar, "During the COVID-19 Pandemic: Experiences of Ontario First-year Postsecondary Students in 2020–21", (*Toronto: Higher Education Quality Council of Ontario*, 2022). https://heqco.ca/pub/ontario-learning-during-the-covid-19-pandemic-experiences-of-ontario-first-year-postsecondary-students-in-2020-21/

[14] Ibid.

[15] Nicole Johnson et al., "2024 Pan-Canadian Report on Digital Learning,"

[16] Ibid.

timely access to reliable captions and/or transcripts for their classes. To ensure schools have the ability to equip themselves with the tools necessary to make online learning, including recorded lectures, equitable for all students, it is recommended that the provincial government provide institutions with envelope funding for the purpose of acquiring or making more widely available accessible technology.

In recent years it has become more commonplace for instructors to require students to purchase third-party resources, such as digital textbooks or licenses for software for coursework and assessments. However, because accessibility requirements vary by region, these external resources may not meet the accessibility standards required for an Ontario university. As such, courses may require third party resources that are not fully accessible for students with disabilities. HECQO found that inaccessible course materials was one the primary concerns with emergency transitions to online learning.[17] These problems have persisted post-COVID-19 despite efforts to improve accessibility.[18] It is thus recommended that MCURES enact regulation which requires institutions to ensure that classroom documents and third-party resources employed in course delivery meet the AODA standards for web content.

Despite this large-scale integration of technology into education only really proliferating in the last decade, the overall topic of tech-enabled learning has been of discussion for some time. This has allowed for extremely meaningful research reports to be developed that provide strategies and recommendations for ensuring equitable integration and practices. The Development of Proposed Post-Secondary Education Report, focused on dismantling barriers to accessibility in port-secondary more broadly, crafted specific recommendations in the realm of ensuring accessibility extends to the digital space in learning as well. OUSA recommends that the Government of Ontario implement recommendation 68 in the Development of Proposed Post-Secondary Education Report “each postsecondary institution must develop and make publicly available a plan to seamlessly include accessibility in the digital learning and technology used throughout the academic journey of all students with disabilities”. It is also recommended that the Government of Ontario implement recommendation 69 in the Development of Proposed Post-Secondary Education Report “the Digital Learning and Technology plan must be created in consultation with a diverse body of stakeholders that includes students with disabilities”.

RURAL AND NORTHERN CONNECTIVITY

Principle: Reliable internet access is an integral part of success in modern learning.

Principle: Every student should have access to reliable internet connectivity at a reasonable cost which allows them to succeed in an online environment.

Concern: Many northern, rural, and Indigenous students may face high shipping or travel costs to acquire technology required for success in online learning and a lack of local access to adequate technology.

Concern: Northern and rural communities may face increased financial barriers for reliable internet access.

[17] Jackie Pichette, Sarah Brumwell, and Jessica Rizk, *Improving the Accessibility of Remote Higher Education: Lesson from the Pandemic and Recommendations* (Toronto: Higher Education Quality Council of Ontario, 2020), https://heqco.ca/pub/improving-the-accessibility-of-remote-higher-education-lessons-from-the-pandemic-and-recommendations/

[18] Sarah Brumwell and Jackie Pichette, *Ontario Learning Since the COVID-19 Pandemic: An Updated Look at Student Experiences and Outcomes in 2021–22* (Toronto, ON: Higher Education Quality Council of Ontario, 2024), https://heqco.ca/wp-content/uploads/2024/04/Pandemic-Impacts-FINAL.pdf

Concern: There is a lack of immediate and individually accessible grants for internet installation for post-secondary students in rural and northern areas.

Recommendation: The provincial government should expand the OSAP technology grant to incorporate the cost of internet coverage for the duration of the academic year.

Recommendation: The provincial government should continue the funding and expansion of independent Contact North Online Learning Centres supporting greater online and remote access for students in northern and rural areas.

Reliable internet access is an integral part of success in modern learning. However, despite the fast paced expansion of technological integration in post-secondary education, the infrastructure across Ontario has not matched this pace, leaving some students in rural and northern areas to face disproportionate barriers in fully accessing post-secondary.

Research has long been conducted into the challenges behind bringing fast pace connectivity to these areas citing inconsistent feasibility of bringing traditional broadband technologies to complicated terrain and areas stretching over long distances.[19] While efforts such as satellite connections have been implemented in some cases, there remains a tangible deficiency in what these technologies can provide, and the high speed connectivity required for most digital learning. The CRTC asserted that the minimum bandwidth for Canadian homes is 50 megabits per second (Mbps) download and 10 Mbps download, commonly referred to as 50/10). Despite this serving as the minimum, The Blue Sky Economic Growth Corporation (Blue Sky Net) and connectednorth.ca reveals that all communities in Northern Ontario have met that standard. Only 75% with access to 50/10 Mbps, and when the five largest communities are excluded, only 56.6% have access.[20]

Despite these challenges, every student should have access to reliable internet connectivity at a reasonable cost which allows them to succeed in an online environment. One of the more significant barriers to expanding connectivity to these areas remains the cost factor with broadband infrastructure requiring a large capital investment on the part of corporations which in turn gets passed down to consumers. Northern and rural communities may then face increased financial barriers for reliable internet access. A recent study in the Ontario context found that “rural users pay significantly more for broadband than urban users…after controlling for connection type and household factors rural users pay 46% and 14% higher installation and monthly fees respectively”.[21] Despite these higher costs, there is a lack of immediate and individually accessible grants for internet installation for post-secondary students in rural and northern areas. OUSA accordingly recommends that the provincial government expand the OSAP technology grant to incorporate the cost of internet coverage for the duration of the academic year.

Beyond the factor of internet connectivity itself, many northern, rural, and Indigenous students may face high shipping or travel costs to acquire technology required for success in online learning and a lack of local access to adequate technology. Hardware that gives access to pertinent technology has become a necessity in the post-secondary landscape However, higher rural shipping costs resulting from longer distances, different terrain and possibly required specialized delivery methods continues to present

[19] Tammy Soanes-White, “Defining and Exploring Broadband Connections and Education Solutions in Canada’s North,” *Canadian Journal of Learning and Technology* 48, no. 4 (2022): 1–18. https://doi.org/10.21432/cjlt28262
[20] Blue Sky Net, “Northern Ontario Broadband Report 2025,” *Blue Sky Net,* 2025, https://connectednorth.ca/wp-content/uploads/2025/02/2025-Northern-Ontario-Broadband-Report_FEB-2025.pdf
[21] David Worden and Helen Hambly, “Willingness to Pay and Pricing for Broadband Across the Rural/Urban Divide in Canada,” *Telecommunications Policy* 46, no. 2 (September 27, 2021): 102247, https://doi.org/10.1016/j.telpol.2021.102247

barriers to rural and northern students attempting to access such. Initiatives such as the Contact North Online Learning Centres represent some important work that has been done in the sector to attempt to provide necessary connectivity opportunities to rural and northern communities. Their locations across Ontario provide a reliable place to access the internet and the necessary devices to participate in online learning. It is recommended that the provincial government continue the funding and expansion of independent Contact North Online Learning Centres supporting greater online and remote access for students in northern and rural areas.

FINANCIAL ACCESS TO TECHNOLOGICAL RESOURCES

Principle: Every student should have access to reliable technology and equipment to support learning initiatives specific to their program.

Principle: Institutions should provide students access to the technology required to succeed in their programs.

Concern: Students may struggle to afford the necessary technology and software to make online learning a viable option for them.

Concern: The mandated use of often high cost third party resources in courses creates financial barriers for students.

Concern: Costs arising from peripheral technology required for participation in a course are not always clearly noted at the time of enrolment despite regulation requiring it, creating barriers for participation later on.

Recommendation: MCURES should provide grant funding to post-secondary financial aid offices earmarked to support students who lack the resources to purchase appropriate technology.

Recommendation: The provincial government should implement provisions within OSAP funding calculations that take into account the unique technological requirements of specific programs.

Recommendation: The provincial government should amend the computer allowance within OSAP to provide students with a grant of up to $1500 to use during their degree.

Recommendation: MCURES should create best practices for implementation of policies in accordance with Bill 166's provision for transparency with associated post-secondary costs.

As the landscape of the post secondary sector shifts in a post-pandemic era, digital learning components are more commonly integrated for both online and in person courses, and access to the according technological resources has become a necessity for equitable access to an education. While each degree is unique in the extent to which technology is integrated and the specifications applicable required resources may have, every student should have access to reliable technology and equipment to support learning initiatives specific to their program. Although there are numerous noted benefits of augmenting traditional in-person based curriculum with online learning components, the opportunity for students to realize such is dependent on having the means to access these digital resources. It thus paramount that institutions should provide students access to the technology required to succeed in their programs.

Due of the extent to which technology has been implemented into learning, no matter the main course delivery mode, it has become extremely difficult to avoid having to access digital resources and its

required tech peripherals, which could pose barriers for some students. A recent survey from the Canadian Digital Learning Research Association noted that 84% of surveyed education professionals believed that there would be greater technology use in teaching and learning, regardless of mode of course delivery.[22] However, the vast digital inequity continues to have tangible effects on student access to post-secondary and success when in the sector. A recent study on digital access and achievement gaps found an association between difficulty consistently gaining access to common tech resources (i.e., laptops & wireless internet connection) and a lower grade point average.[23] Some monetary support does currently exist through the OSAP funding model, such as the computer allowance that currently distributes $500 per year to support technology purchases.[24] However, to support students in buying a reliable and sufficient device that can be used throughout their program, OUSA recommends that the provincial government amend the computer allowance within OSAP to provide students with a grant of up to $1500 to use during their degree.

Beyond the basic technology most students expect to require throughout their studies, each program's specifications may present additional costs that students are not prepared for. The mandated use of often high cost third party resources in courses creates financial barriers for students. For example a print textbook may cost $200 but the digital equivalent with online exercises and assessments may cost $1500 and limit students' access to one year.[25] Although such external course resources can have tangible benefits as a novel and engaging tool for further studying of course content or completing assessments, research has found that it can exacerbate socio-economic disparities in education.[26] To ensure institutions facilitate equitable access to digital learning tools across program requirements, OUSA recommends that MCURES should provide grant funding to post-secondary financial aid office. As previously mentioned, the utilization of third party resources, or any other digital learning tools can vary greatly between programs, some students find themselves facing greater costs to access necessary course resources. Despite the necessary technology being deemed a required component for course completion, these specific resource necessities are not currently individually assessed within provincial student funding models. Rather a broad stroke funding calculation is taken with estimated technology costs for programs generally, leaving some students to face disproportionately high cost burdens for their required course resources. OUSA recommends that the provincial government implement provisions within OSAP funding calculations that take into account the unique technological requirements of specific programs.

Very notable progress has been seen recently in the post-secondary sector through the passing of Bill 166 which mandates that institutions have clearly posted information on the cost of student's educational materials as it pertains to the cost of overall attendance. Although this is a step in the direction to addressing the aforementioned issue of varied hidden expenses through requirements such as third-party resources in course completion, costs arising from peripheral technology required for participation in a

[22] Nicole Johnson et al., "2024 Pan-Canadian Report on Digital Learning,"
[23] A recent study on digital access and achievement gaps found an association between difficulty consistently gaining access to common tech resources (i.e., laptops & wireless internet connection) and a lower grade point average
[24] Student Financial Assistance Branch, "Ontario Student Assistance Program: Full-Time OSAP Policy Manual 2020-21," Ministry of Colleges, Universities, Research Excellence and Security, Version 2.1, October 2020 (unpublished).
[25] Katherine McColgan, "Equitable, Affordable Access to Digital Course Materials for University Students: Issues and Solutions - Canadian Association of Research Libraries," Canadian Association of Research Libraries, November 12, 2020, https://www.carl-abrc.ca/news/equitable-affordable-access-to-digital-course-materials-for-university-students-issues-and-solutions/
[26] "Bridging the Gap: Unraveling the Digital Divide", *Government of Canada,* October 04, 2023, https://busrides-trajetsenbus.csps-efpc.gc.ca/en/ep-108-en

course remain not always clearly noted at the time of enrolment despite regulation requiring it, in turn creating barriers for participation later on. OUSA accordingly recommends that MCURES create best practices for implementation of policies in accordance with Bill 166's provision for transparency with associated post-secondary costs.

AFFORDABILITY

Principle: The provincial government and post-secondary institutions should collaborate to minimize the expenses related to technological upgrades, software, and accessibility supports, ensuring that post-secondary institutions remain the primary cost-bearers.

Principle: It is integral that the provincial government and post-secondary institutions collaborate to minimize expenses related to technological upgrades, software, and accessibility supports.

Principle: The provincial government and post-secondary institutions should continue to invest in technological supports and infrastructure to make education more affordable for students.

Concern: The cost of technology and software has increased, however, students are expected to pay for additional costs without corresponding increases in financial supports.

Concern: There is a lack of affordable alternatives to digital resources unlike their physical counterparts.

Recommendation: The provincial government should continue to support post-secondary institutions through the Virtual Learning Strategy for Post-Secondary Education, providing additional funding toward needs based institutional grants for the costs of technology associated with a program's content.

Recommendation: The provincial government should implement research and development grants for post-secondary institutions t0 develop and integrate innovative hardware, software, or OERs; enabling higher quality education and reduced course fees for students.

Recommendation: MCURES should narrow the Tuition Fee Framework and Ancillary Fees Guidelines to establish limitations on the costs affiliated with utilizing third party technologies.

Recommendation: The provincial government should task the Higher Education Quality Control of Ontario with researching the rising cost of technology associated with post-secondary education as well as the impacts and successes of government loans and research and development grants (such as the Virtual Learning Strategy grant) effectiveness in reducing financial barriers.

The development of students' technological proficiency during their post-secondary education enables them to meet the evolving demands of the workforce and meaningfully contribute to the economy and sectors within which they go on to work.[27] Among the largest barriers to developing these skills are the affordability barriers students face while attempting to access newer technology related to their studies. Students in Canada are spending on average $1,600 CAD per year on technology for post-secondary education.[28] While technological capacity has expanded, students have been left to face these rising

[27] Nicole Johnson, "An Increasing Demand for Technology Use in Teaching and Learning: 2023 Pan-Canadian Report on Digital Learning Trends in Canadian Post-Secondary Education," *Canadian Digital Learning Research Association*, 2023, https://www.cdlra-acrfl.ca/wp-content/uploads/2023/12/2023-Pan-Canadian-Report-EN.pdf

[28] Wealth Management Dominion Securities, "The cost of post-secondary education in Canada," RBC, 2016, https://ca.rbcwealthmanagement.com/documents/127029/127049/The+cost+of+post-secondary+education+in+Canada+-+Benefield+Team.pdf/4882f74e-c0e6-4414-9cd9-ee3b2345e5af

costs without additional supports to match their fees. As such, it is integral that the provincial government and post-secondary institutions collaborate to minimize expenses related to technological upgrades, software, and accessibility supports ensuring that post-secondary institutions remain the primary cost-bearers. Within this, the provincial government should implement research and development grants for post-secondary institutions t0 develop and integrate innovative hardware, software, or OERs, enabling higher quality education and reduced course fees for students.

In order to ensure students are receiving the high-quality education, The provincial government should continue to support post-secondary institutions through the Virtual Learning Strategy for Post-Secondary Education, providing additional funding toward needs based institutional grants for the costs of technology associated with a program's content. Additionally, MCURES should narrow the Tuition Fee Framework and Ancillary Fees Guidelines to establish limitations on the costs affiliated with utilizing third party technologies. By establishing limitations on the costs affiliated with utilizing third party technologies, MCURES, can establish guardrails that do no limit instructors capacity to utilize third party technologies that benefit students, but urge institutions and software providers to ensure that these tools are provided to students accessibly and affordably. Additionally, it is important that the costs associated with technological resources are evaluated as the province addresses affordability concerns. As such, the provincial government should task the Higher Education Quality Control of Ontario with researching the rising cost of technology associated with post-secondary education as well as the impacts and successes of government loans and research and development grants (such as the Virtual Learning Strategy grant) effectiveness in reducing financial barriers.

One of the barriers to students accessing technological resources is the lack of affordable alternatives to digital resources unlike their physical counterparts. A useful alternative to digital textbooks and course materials is OERs; OERs are high-quality resources that promote affordability and accessibility of course curriculum while mitigating expenditures for students.[29] On average, student spent $588 on textbooks and course packs in 2022.[30] These additional costs could be mitigated through the use of OERs which are available at no cost for students and educators. OERs are advantageous for maintaining relevancy of course material. As “living documents” these resources can be continually updated to incorporate advancements within the field and new topics of research, much faster than the publishing of new textbook editions can.[31] In addition, with the integration of online module capacities, these resources can provide students with additional means of practising course material irreplicable with traditional textbooks. To facilitate broader adoption of OERs, the provincial government should implement research and development grants for post-secondary institutions t0 develop and integrate innovative hardware, software, or OERs, enabling higher quality education and reduced course fees for students.

[29] Nicole Johnson, “An Increasing Demand for Technology Use in Teaching and Learning: 2023 Pan-Canadian Report on Digital Learning Trends in Canadian Post-Secondary Education,”
[30] Octavia Andrade-Dixon and Abishane Suthakaran, *Affordability: Results from the 2022 Ontario Undergraduate Student Survey,* Research Report (Toronto: Ontario Undergraduate Student Alliance, 2025)
[31] Amber Mullens and Bobby Hoffman, “The Affordability Solution: a Systematic Review of Open Educational Resources,” *Educational Psychology Review* 35, no. 72 (2023), https://link.springer.com/article/10.1007/s10648-023-09793-7

ACCOUNTABILITY

DATA COLLECTION AND TRANSPARENCY

Principle: Legislation surrounding the collection of data within post-secondary education should be rooted in evidence and used to improve the student experience, accessibility, and equity within the sector.

Principle: It is integral that prospective students have access to relevant information such as, learning outcomes, enrolment data, institutional performance metrics to make informed decisions when choosing a post-secondary institution.

Principle: Open University Data should be used to drive innovations to improve in person and online university experience, thereby contributing to a more transparent and accessible higher education.

Concern: University data such as research reports, spending reports, and information on student needs is often unavailable or difficult to access for students and sector professionals which creates barriers to improvement of the post-secondary experience.

Concern: There are no provincial standardised requirements for institutions to release their data publicly, leading to inconsistencies in data quality and availability across the post-secondary sector.

Concern: There is a lack of standardization and quality control in the data collection process in the post-secondary sector, which compromises the integrity and usefulness of public data.

Concern: Not all post-secondary institutions consistently collect learning outcomes or student experience data.

Concern: Ontario's existing data collection practices are insufficient to assess its digital learning objectives.

Recommendation: The provincial government should enhance its data collection procedures to track and evaluate the impact of online learning on student outcomes, such as graduation rates, skills acquisition, and postgraduate employment.

Recommendation: MCURES mandate that all post-secondary institutions annually disclose online course completion rates, student satisfaction scores, and accessibility metrics via HEQCO's Open Data Inventory to improve public access and accountability.

Recommendation: The provincial government should task HEQCO to expand their Open University database to generate and maintain consistent measures of data across post-secondary institutions.

Recommendation: The provincial government should work in collaboration with the COU to develop a publicly available uniform data collection system for learning outcomes and student experience.

Recommendation: MCURES should establish clear guidelines for data collection to ensure the integrity of publicly available data.

Recommendation: MCURES should create a taskforce that will establish a standardized data collection framework to be employed across all post-secondary institutions provincially.

Open University Data should be used to drive innovations to improve in person and online university experience, thereby contributing to a more transparent and accessible higher education. In Ontario, there is a lack of standardization and quality control in the data collection process in the post-secondary sector, which compromises the integrity and usefulness of public data. This gap in uniformity makes it difficult for prospective students to evaluate their options effectively, hindering their ability to make informed decisions based on learning outcomes, enrolment data, and institutional performance metrics. Without centralization or clear guidelines, valuable data, including student needs, research reports, and financial transparency, is often either unavailable or difficult to access, compromising both transparency and accountability in the post-secondary sector. Additionally, Ontario's existing data collection infrastructure remains insufficient to evaluate digital learning objectives, which are critical for measuring student success in online environments.[32] This lack of coherence extends to the collection and publication of learning outcomes and student experience data, which are inconsistently tracked across institutions. Often, university data such as research reports, spending reports, and information on student needs is often unavailable or difficult to access for students and sector professionals which creates barriers to improvement of the post-secondary experience. As a result, there are avoidable barriers to comparing institutional performance and track educational outcomes for marginalized groups, including students with disabilities or those from diverse racial or socio-economic backgrounds.[33]

It is integral that prospective students have access to relevant information such as, learning outcomes, enrolment data, institutional performance metrics to make informed decisions when choosing a post-secondary institution. To address these concerns, MCURES mandate that all post-secondary institutions annually disclose online course completion rates, student satisfaction scores, and accessibility metrics via HEQCO's Open Data Inventory to improve public access and accountability. This would not only provide students with the necessary tools to make more informed decisions but also promote innovations that can improve the university experience in both in-person and online learning environments. With these improved data measures, the provincial government should task HEQCO to expand their Open University database to generate and maintain consistent measures of data across post-secondary institutions. Moreover, the provincial government should enhance its data collection procedures to track and evaluate the impact of online learning on student outcomes, such as graduation rates, skills acquisition, and postgraduate employment. To further transparency, the provincial government should work in collaboration with the COU to develop a publicly available uniform data collection system for learning outcomes and student experience

Legislation surrounding the collection of data within post-secondary education should be rooted in evidence and used to improve the student experience, accessibility, and equity within the sector. Currently, there are no provincial standardised requirements for institutions to release their data publicly, leading to inconsistencies in data quality and availability across the post-secondary sector. As such, not all post-secondary institutions consistently collect learning outcomes or student experience data. In an effort to improve data collection efforts, MCURES should create a taskforce that will establish a standardized data collection framework to be employed across all post-secondary institutions provincially. Additionally, MCURES should establish clear guidelines for data collection to ensure the integrity of publicly available data. Ultimately, transparent and comprehensive data collection practices will not only empower prospective students but also contribute to the ongoing improvement of higher education in Ontario, particularly in terms of student equity, accessibility, and overall institutional performance.[34]

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[32] Kelly Gallagher-Mackay, "Data Infrastructure for Studying Equity of Access to Postsecondary Education in Ontario," *Higher Education Quality Council of Ontario*, 2017, https://heqco.ca/pub/data-infrastructure-for-studying-equity-of-access-to-postsecondary-education-in-ontario/

[33] Hamilton Community Research Partnership, "Hamilton Community Research Partnership Project Shows the Potential Benefits of Data-Sharing Coalitions," *Higher Education Quality Council of Ontario*, 2023. https://heqco.ca/pub/hamilton-community-research-partnership-project-shows-the-potential-benefits-of-data-sharing-coalitions/

[34] Karen Robson, "Ontario School Boards Require Clearer Guidance to Collect Student Census Data," *Higher Education Quality Council of Ontario*, 2023, https://heqco.ca/ontario-school-boards-require-clearer-guidance-to-collect-student-census-data/

PRIVACY, INTELLECTUAL PROPERTY, & EMERGING TECHNOLOGIES

INTELLECTUAL PROPERTY RIGHTS & OWNERSHIP OF MATERIALS

Principle: Students should have access to lecture material for the duration of the course in a manner that does not compromise instructor ownership of material

Concern: Student accommodations pertaining to course content may be denied due to instructors concerns about intellectual property rights infringement recording of their lecture

Concern: Students' access to course content is often limited due to instructors' concerns about unauthorized redistribution of their intellectual property influencing their willingness to post course content online.

Recommendation: MCURES should commission the Ontario Universities Council on Quality Assurance (OUCQA) with surveying institutions to produce a comprehensive framework for an intellectual property amendment to the MTCU Act.

Recommendation: The provincial government should commission HEQCO in consultation with faculty and instructors to create a best practice guide to avoiding/mitigating concerns related to intellectual property theft.

Students should have access to lecture material for the duration of the course in a manner that does not compromise instructor ownership of material. However, one of the significant concerns regarding online teaching and lecture recordings is unauthorized redistribution of instructors' intellectual property. This possibility influences their willingness to post course content online, often limiting students' access to course content. According to the "Copyright in Online Teaching Materials" article, during the shift to online learning, many instructors began recording and posting lectures for asynchronous viewing. Unfortunately, this has led to situations where students distribute these materials without permission, violating copyright protections.[35] While instructors traditionally have the right to deny students permission to record lectures in person, the online setting complicates this issue, as recordings become more susceptible to unauthorized sharing. This can pose issues for all students, but is especially concerning for students with accommodations. Their accommodations pertaining to course content may be denied due to instructors concerns about intellectual property rights infringement. Lecture recordings can address certain challenges faced by some students, particularly those who may be immunocompromised, disabled, or unable to attend live classes due to illness or other challenges. As noted by Martin Edwini-Bonsu, lecture recordings provide these students with the ability to keep up with their coursework without facing barriers, ensuring a more inclusive learning environment).[36]While volunteer note-taking is often proposed as an alternative, it is not an effective solution due to a lack of quality control and consistency, as each student's note-taking habits vary widely. Additionally, relying on volunteers does not guarantee comprehensive or accurate notes, further worsening the issue.[37]

To ameliorate instructor concerns regarding intellectual property infringement, OUSA recommends that MCURES commission the Ontario Universities Council on Quality Assurance (OUCQA) with surveying institutions to produce a comprehensive framework for an intellectual property amendment to the MTCU Act. Additionally, the provincial government should commission HEQCO in consultation with faculty and

[35] University of Toronto Faculty Association, "Copyright in Online Teaching Materials," *University of Toronto Faculty Association*, 2022, https://www.utfa.org/content/copyright-online-teaching-materials
[36] Martin Edwini-Bonsu, "Letter: Lecture recordings are necessary to keep students learning", *The Ubyssey*, 2022, https://ubyssey.ca/opinion/letter-lecture-recordings-are-necessary-to-keep-students-learning/
[37] Sabrina Macklai, "Another Plea for Lecture Recordings", *Ultra Vires*, October 28, 2021, https://ultravires.ca/2021/10/another-plea-for-lecture-recordings/

instructors to create a best practice guide to avoiding/mitigating concerns related to intellectual property theft. This research could also explore the feasibility and effectiveness of using OERs and other digital tools to ensure that both instructors and students benefit from more flexible accessible.

ONLINE PROCTORING

Principle: Academic integrity should be upheld in both online and in-person settings.

Principle: Students' privacy and dignity should be prioritized through the use of minimally invasive methods of academic dishonesty prevention.

Principle: A student should not be unjustly suspected of cheating as a result of a proctoring software's inability to accurately interpret their race, gender, religion, medical condition, disability, etc.

Concern: Online proctoring software can present increased barriers for racialized students who are often not detected by inequitably developed facial recognition features.

Concern: The use of facial recognition in proctoring software can complicate the use of the software by individuals with religious headwear, causing undue pressure to remove their headwear to access their assessment.

Concern: Students are unfairly penalized due to typical changes in their behaviours and environments

Concern: Ableist requirements that prohibit movement and restrict the use of accommodation aids make online proctoring software inaccessible discriminatory towards students with disabilities.

Concern: There is a lack of protections for students against harassment or other privacy violations enacted by proctoring staff due to third party employees falling outside of university jurisdiction.

Concern: Many instructors do not offer alternatives to proctoring software and/or make applying for alternative assessments intentionally unreasonable to dissuade students from accessing them

Concern: Despite there being known methods of discouraging academic dishonesty in online courses that are much less invasive and protect students' dignity yet, instructors and institutions continue to use proctoring software

Recommendation: MCURES in consultation with marginalized students, student governments, and experts should create provincial standards for proctor software, ensuring that it meets requirements for equitable assessment, privacy, accessibility, and data security.

Recommendation: MCURES should mandate that universities commit to using the most minimally invasive software practices for ensuring academic integrity during assessments, wherever possible.

Recommendation: MCURES should mandate policies pertaining to permitted uses of accommodation aids during online-proctored exams for students with disabilities.

Recommendation: MCURES should mandate that institutions ensure that online proctoring standards mirror in person proctoring exam regulations for typical student behaviour and environmental interferences.

Recommendation: MCURES should require institutions to educate instructors of the risks and possible harms of proctoring software, and alternative assessment methods that do not require proctoring software.

Recommendation: MCURES should mandate that all post-secondary institutions establish clear and accessible policies regarding alternative assessment methods for students who cannot use proctoring software.

The issue of online proctoring has become increasingly prevalent in the context of academic integrity, but it raises significant concerns regarding privacy, accessibility, and equity. Academic integrity should be upheld in both online and in-person settings, but not at the cost of students' rights or well-being. While these tools are intended to deter academic dishonesty, their implementation has often resulted in invasive surveillance, discrimination, and barriers to access—particularly for marginalized students. They can present increased barriers for racialized students who are often not detected by inequitably developed facial recognition features. Online proctoring software often relies on Artificial Intelligence (AI)-based systems such as facial recognition, which are frequently inaccurate and inequitably developed. Racialized students, particularly Black and Asian students, have reported that facial recognition systems fail to accurately identify them, often flagging them for cheating or delaying their ability to take exams.[38] These failures are systemic shortfalls in these systems which are predominantly developed to recognize lighter skin tones.[39] For religious students, the use of facial recognition in proctoring software can complicate the use of the software by individuals with religious headwear, causing undue pressure to remove their headwear to access their assessment. Such bias jeopardize students right to not be unjustly suspected of cheating based on race, disability, or religious identity, and contributes to heightened stress, academic risk, and feelings of exclusion.

These biases also often affect students of different abilities as well. Online proctoring has specific implications for students with disabilities, as many systems prohibit certain movements or restrict the use of necessary accommodation aids, such as screen readers or physical assistance devices.[40] This is not only ableist but also leaves students with disabilities at a distinct disadvantage, violating the principle of equity in academic assessments. Moreover, students with conditions that involve involuntary movements, such as those with Tourette's syndrome or autism, may face further discrimination from proctoring systems that misinterpret their behaviours as suspicious.[41] The ableist assumptions embedded in these technologies further marginalize students who already face systemic barriers. The rigidity of many proctoring systems has also led to students being penalized for normal or uncontrollable behaviours, such as glancing around the room, drinking water, or adjusting their seating. These platforms often fail to reflect the nuance and flexibility that in person exams afford. Students with medical conditions or those observing religious fasts, such as during Ramadan, may need to snack, hydrate, or break their fast during an exam, which must be explicitly protected in accommodation policies. Without these safeguards, students are forced to choose between academic performance and their wellbeing or spiritual practice.

Students' privacy should be prioritized through minimally invasive methods of academic dishonesty prevention. The widespread use of online proctoring software raises serious concerns about privacy.

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[38] Adam Lam, "BIPOC students face disadvantages with exam monitoring software at the University of Toronto," *The Strand*, February 2, 2021, https://thestrand.ca/bipoc-students-face-disadvantages-with-exam-monitoring-software-at-the-university-of-toronto/; Joe Friesen, "Use of surveillance software to crack down on exam cheating has unintended consequences", *The Globe and Mail*, December 16, 2020, https://www.theglobeandmail.com/canada/article-use-of-surveillance-software-to-crack-down-on-exam-cheating-has/

[39] Bonnie Stewart, "OPINION: Online exam monitoring can invade privacy and erode trust at universities", Canadian Security, December 4, 2020, https://www.canadiansecuritymag.com/opinion-online-exam-monitoring-can-invade-privacy-and-erode-trust-at-universities/

[40] Jessica Wong, "Post-secondary students call for changes to online exam rules as cheating concerns rise", *CBC*, October 25, 2020, https://www.cbc.ca/news/canada/post-secondary-assessment-integrity-proctoring-1.5767953

[41] Sioux McKenna, "Neoliberalism's Conditioning Effects on the University and the Example of Proctoring during COVID-19 and Since," *Journal of Critical Realism* 21, no. 5 (July 22, 2022): 502–15, https://doi.org/10.1080/14767430.2022.2100612

These platforms often collect biometric data, such as facial features, voice, and behavioural patterns, creating potential risks of data breaches and unauthorized access to sensitive student information.[42] There is a lack of protections for students against harassment or other privacy violations enacted by proctoring staff due to third party employees falling outside of university jurisdiction. These staff have been implicated in privacy violations and even harassment. Institutions must be held directly responsible for adjudicating and proctoring assessments, ensuring that these processes occur under regulated and accountable frameworks. In addition to the privacy risks, some students have raised concerns about the intrusion these systems cause during exams. For example, students have reported feeling pressured to alter their environment—such as adjusting lighting or relocating to a different room—to meet the system's requirements.[43] This can disproportionately affect students living in shared or multigenerational households, or those without access to ideal testing environments, which further exacerbates inequities.

Despite the awareness of the issues associated with online proctoring software, many instructors do not offer alternatives to proctoring software, or make the process of applying for alternative assessments intentionally cumbersome, discouraging students from requesting accommodations (8).[44] This not only violates the principle of accessibility but also risks marginalizing students who already face barriers to equal access. Furthermore, despite the availability of less invasive methods for ensuring academic integrity, such as open-book exams, essays, and other non-proctored assessments, many institutions continue to rely on proctoring software.[45] Some of this reliance may stem from a lack of instructor training or institutional clarity on assessment design, but the result is that students who cannot comply with rigid proctoring standards are disproportionately penalized. Institutions must recognize the logistical and financial burden that proctoring software imposes, not only on students but also on the infrastructure needed to run such tools effectively. In contrast, alternative models may offer a more cost-effective and equitable approach. As part of this shift, universities should consider grade redistribution, which lessens the weight of high-stakes final exams and incorporates more continuous forms of assessment. This would allow instructors to evaluate learning without relying on surveillance-heavy practices, supporting both academic integrity and student dignity.

OUSA recommends that MCURES mandate institutions to establish clear standards for proctoring software to ensure that it meets requirements for equitable assessment, privacy, accessibility, and data security. These standards should be developed in consultation with students, particularly those from marginalized communities who are most affected by the use of proctoring software .[46] These standards must meets requirements for equitable assessment, privacy, accessibility, and data security. Further, MCURES should mandate that institutions ensure that online proctoring standards mirror in person proctoring exam regulations for typical student behaviour and environmental interferences. Policies should also be mandated pertaining to permitted uses of accommodation aids during online-proctored exams for students with disabilities. are not unfairly disadvantaged.[47]

Moreover, the Ministry should mandate that institutions inform instructors of the risks and potential harms of proctoring software and provide alternative assessment methods that do not require proctoring. Including a mandatory training on alternative assessment methods should be provided to instructors,

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[42] Jessica Wong, “Online proctoring biometrics fails to meet Canada’s legal threshold of consent: report,” *Canadian Lawyer Magazine*, December 2, 2022, https://www.canadianlawyermag.com/practice-areas/privacy-and-data/online-proctoring-biometrics-fails-to-meet-canadas-legal-threshold-of-consent-report/372049; Celina Castets-Renard and Simon Robichaud-Durand, “Online Test Proctoring Software and Social Control: Is the Legal Framework for Personal Information and AI Protective Enough in Canada,” *SSRN*, September 22, 2022, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4205940

[43] Wong, “Post-secondary students call for changes to online exam rules as cheating concerns rise,”

[44] Kari Zacharias and Ketra Schmitt, “Questioning the ethics of online proctoring,” *University Affairs*, December 3, 2021, https://universityaffairs.ca/opinion/in-my-opinion/questioning-the-ethics-of-online-proctoring/

[45] Wong, “Post-secondary students call for changes to online exam rules as cheating concerns rise” https://www.cbc.ca/news/canada/post-secondary-assessment-integrity-proctoring-1.5767953

[46] Lam, “BIPOC students face disadvantages with exam monitoring software at the University of Toronto, *The Strand*, February 2, 2021; Stewart, “OPINION: Online exam monitoring can invade privacy and erode trust at universities,”

[47] Friesen, “Use of surveillance software to crack down on exam cheating has unintended consequences,”

ensuring that they are equipped to offer inclusive and effective assessments.[48] This would ensure that alternative options are not only available but also easily accessible for students who cannot use proctoring software. These policies should be streamlined and user-friendly, eliminating unnecessary barriers to requesting accommodations. By addressing these issues, the government can help create a fairer, more inclusive environment for all students, regardless of their race, religion, disability, or socio-economic background. Policies should also explicitly allow the use of accommodation aids, such as screen readers, movement breaks, or assistance devices. Instructors must be trained in alternative assessment design, and institutions should establish transparent, accessible pathways for students to request and receive these alternatives. These systems must be clear, timely, and free from intimidation or excessive administrative burden, thereby eliminating barriers that discourage students from asserting their needs. By regulating online proctoring tools and prioritizing inclusive, student-centered assessment practices, the Ministry and institutions can uphold academic integrity without compromising equity, privacy, and dignity.

LEARNING INNOVATIONS

Principle: Tools used for tech-enabled learning, should be high-quality, and must be accessible to a wide range of users without posing additional financial barriers for students.

Principle: Institutional, instructor, and student needs should guide decisions around which digital tools/resources and AI- based platforms are used in the classroom.

Principle: Digital tools including AI technologies developed by external organizations can offer genuine value to students, instructors, and their institutions, facilitating innovation in the post-secondary sector, and thus should not be barred outright.

Principle: Post-secondary institutions should be at the forefront of research and development of new pedagogical approaches and tools.

Principle: Students should be able to access evidence-based information on the impacts of emerging learning-focused technologies.

Concern: There is a distrust amongst educators regarding the implications of AI on learning outcomes in post-secondary education, leading to a resistance in deepening understanding.

Concern: Many institutions lack enforceable guidelines for the integration of AI in the classroom.

Concern: Due to a lack of involvement from public institutions to design and develop their own educational tools, there is an increased reliance on external organizations who may prioritize profit and marketability to institutions/instructors over student learning and experience.

Concern: There is a growing risk that educational tools that use AI may undermine educational equity principles which unintentionally reinforce biases and create inequitable learning experiences, making it difficult for students and instructors to critically engage with these tools.

Recommendation: The Ministry of Colleges, Universities, Research Excellence and Security in consultation with organizations such as eCampusOntario, should develop a task force of students, faculty experts, and (innovators to create provincial guidelines for ethical integration of generative AI in post-

[48] Zacharias and Schmitt, “Questioning the ethics of online proctoring,”

secondary education.

Recommendation: The Ministry of Colleges, Universities, Research Excellence and Security should mandate that each post-secondary institution must develop and publish a strategy to improve the accessibility of digital learning tools and technology to meet AODA standard to be updated on a five year cycle basis.

Recommendation: The provincial government should contribute more funding to the Virtual Learning Strategy to support institutions in implementing and maintaining accessible digital learning environments for students with disabilities.

Recommendation: The provincial government should provide grant funding for institutions developing and expanding inter-institutional access to digital learning tools and platforms.

Recommendation: The Ministry of Colleges, Universities, Research Excellence and Security should mandate that any AI-powered educational tools used in post-secondary institutions must be independently audited by a panel including student representatives to assess their fairness, transparency, data security, IP protection, and alignment with educational equity principles.

Recommendation: The provincial government should expand grant funding for public institutions design and development of educational tools.

Advancements in technology are rapidly evolving and its implications on learning tools is no exception. Artificial intelligence (AI) has made an impressionable impact on students and its utility towards their education. According to OUSA's 2024 Ontario Undergraduate Student Survey, about 62 percent of students have used an AI-powered tool for their courses.[49] AI has served as a helpful educational aide, with almost 71 percent saying they used it for copy editing, 29 percent for research work, 59 percent for generating ideas, and about 56 percent for exam preparation.[50] Educators are not alone in their concerns that AI promotes a lack of skill development, as students also recognize this. However, prohibiting its use in the classroom is a missed opportunity for students to enhance their learning and understanding of material which can ultimately improve the quality of education. As one student told us, when asked for their opinion on using AI to complete school work, "Depends on its use, it can be a blessing and a curse. If you always rely on it, you will lose the critical skills you need on your own for idea formation as well as sentence structure. However using it as a tool to understand concepts, guide you in the right direction and to even answer questions about certain topics that your professor doesn't have the time to answer for you to help with comprehension can be a huge bonus."[51] Knowing that there are slight risks with AI in education, OUSA recommends that MCURES, in consultation with organizations such as eCampusOntario, develop a task force of students, faculty experts and innovators to create provincial guidelines for ethical integration of generative AI in post-secondary education. This would provide a guidepost for institutions in the refinement of their AI policies. This is necessary because one of the main reasons that students avoid AI is due to limited understanding of their institution's policy around it.[52] These guidelines should address issues such as academic integrity, data privacy, accessibility, and the responsible use of AI-powered learning tools. Additionally, the government should provide training resources for faculty and instructors to ensure informed and equitable adoption of AI technologies in education.

[49] Unpublished data from OUSA's 2024 Ontario Undergraduate Student Survey.
[50] Unpublished data from OUSA's 2024 Ontario Undergraduate Student Survey.
[51] Unpublished student quote from OUSA's 2024 Ontario Undergraduate Student Survey.
[52] Ryan Tishcoff, Elizabeth Agoe, Miha Isik, and Alexandra MacFarlane, *Using Generative AI to Make Learning More Accessible: Insights from Ontario PSE Students and Staff* (Toronto, ON: Higher Education Quality Council of Ontario), 2024, https://heqco.ca/wp-content/uploads/2024/11/GenAI-Report-FORMATTED-EN.pdf

In the rush to integrate digital learning tools within higher education, it is important that these materials be accessible to all students. In 2022, the provincial government received the final report from the Postsecondary Education Standards Development Committee, which distinguished "digital learning and technology" as a barrier area to education. The Committee proposed that post-secondary institutions should develop an accessibility plan to include standards for accessible procurement for educational resources and inclusive pedagogy, as well as the ways in which they are taking feedback into account for students with disabilities across their entire academic journey.[53] Difficulties engaging with technologies occurs through their design, the student's lack of how to use the technology, and the student's lack of social capital.[54] Similar to the Committee's recommendation, OUSA believes that MCURES should mandate each post-secondary institution to develop and publish a strategy to improve the accessibility of digital learning tools and technology to meet AODA standards to be updated on a five year cycle basis. As well, the province should contribute more funding to the Virtual Learning Strategy to support institutions in implementing and maintaining accessible digital learning environments for students with disabilities. AI has specific benefits for students with disabilities through use of transcription services and/or speech-to-text tools, as well offloading the amount of work for staff in accessibility offices at post-secondary institutions.[55] The Virtual Learning Strategy has supported the expansion of digital learning projects in many creative ways since its launch in 2020. Using this funding to specifically strengthen digital learning environments for disabled students provides an equitable way to maximize their impact.

A growing concern among students is the expansion towards third-party vendors and contractors to provide digital learning tools for students. While faculty would like to develop their own learning materials and enhance their pedagogies, their capacity can be quite limited due to barriers like copyright considerations, lack of technology skills, and time constraints; as a result, they may outsource the distribution of these materials externally.[56] Oftentimes, these groups seek to maximize a profit and it ends up being more expensive for students than materials that are developed within the institution.[57] However, the work being done by digital innovators and researchers who are committed to expanding access to these materials for students can be better utilized if shared among institutions. Mutually sharing available digital learning resources for students can save costs, reduce time commitment, and maximize benefit for students. As such, while the provincial government should expand grant funding for public institutions design and development of educational tools, they should also provide grant funding for institutions to develop and expand inter-institutional access to digital learning tools and platforms. As well, AI-tools being used to help facilitate education must process and assess information in an equitable way. Beneficial uses of AI for post-secondary institutions include formulating ideas, tools to support skill development, and automating tasks that typically take time.[58] However, AI has been critiqued due to biases that discriminate and produce unfair results that work against individuals, particularly those from marginalized communities.[59] While the merits of AI for faculty would enhance learning tools and teaching materials, it is important that the tools being used are verified to have algorithms that reduce bias, if not completely remove it, and secure the privacy of all those using it. Therefore, MCURES should mandate that any AI-powered educational tools used in post-secondary institutions must be independently audited

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[53] Ministry for Seniors and Accessibility, "Development of proposed postsecondary education standards — final recommendations report 2022," *Government of Ontario,* last updated April 25, 2022, https://www.ontario.ca/page/development-proposed-postsecondary-education-standards-final-recommendations-report-2022#section-7

[54] Jane Seale et al. "'Dreaming in colour': Disabled higher education students' perspectives on improving design practices that would enable them to benefit from their use of technologies," *Education and Information Technologies* 26 (2021), https://doi.org/10.1007/s10639-020-10329-7.

[55] Ryan Tishcoff, Elizabeth Agoe, Miha Isik, and Alexandra MacFarlane, *Using Generative AI to Make Learning More Accessible.*

[56] Michael Chee, "White Paper on OER: Seven Recommendations to Improve OER Uptake in Higher Education Institutions," *University of Waterloo,* 2022, https://dspacemainprd01.lib.uwaterloo.ca/server/api/core/bitstreams/35f42931-2ef9-4e72-b822-283da2ff101e/content

[57] Canadian Association of Research Libraries, "Statement on Automatic Textbook Billing Models," *Canadian Association of Research Libraries,* March 2024, https://www.carl-abrc.ca/wp-content/uploads/2024/03/CARL_Statement_AutomaticTextbookBillingModels_EN.docx.pdf

[58] Erin Aspenlieder and Loleen Berdahl, "How faculty can use Generative AI in their teaching," *University Affairs,* September 13, 2024, https://universityaffairs.ca/career-advice/how-faculty-can-use-generative-ai-in-their-teaching/

[59] Bernard Rizk, "AI for all: Addressing bias, discrimination and ethics in artificial intelligence," *University Affairs,* July 2, 2024, https://www.uottawa.ca/faculty-engineering/news-all/ai-all-addressing-bias-discrimination-ethics-artificial-intelligence

by a panel including student representatives to assess their fairness, transparency, data security, IP protection, and alignment with educational equity principles.

ONLINE COURSES

ACCESS & QUALITY

Principle: Post-secondary education should be fully accessible regardless of the course or program delivery mode.

Principle: All students should expect support in achieving the same learning outcomes in an online course as they would in a traditionally-delivered or hybrid course.

Concern: Students may experience barriers or difficulties engaging with online courses due to a course's technological requirements.

Concern: Current quality assurance criteria for changing a course's mode of delivery to online does not require appropriate consideration of instructional support needs or student accessibility needs.

Concern: Since the initial emergency transition to online learning resulting from the COVID-19 pandemic, there is a greater prevalence of virtual courses without in-person alternatives which can serve as a barrier to success for students who do not have the means to fully participate in online learning.

Recommendation: The provincial government should provide envelope funding to institutions to support institutional strategies that enhance students' ability to engage with online courses, such as technology loan programs.

Recommendation: The Ontario Universities Council on Quality Assurance (OUCQA) should amend the Protocol for Major Modifications to require assessment of existing criteria for changing a course from in-person to online.

Online courses present a unique opportunity for students to pursue their education from any locale, and in the case of asynchronous offerings, at their own pace relative to assignment deadlines. Post-secondary education should be fully accessible regardless of the course or program delivery mode, and thus the fact that students may experience barriers or difficulties engaging with online courses due to a course's technological requirements must be addressed.

Research has found that the myriad positive learning outcomes derived from online learning can easily be offset by the unique barriers the modality presents. Studies show that students' from a low-socioeconomic background have been disproportionately negatively affected by technology requirements due to lower overall access to devices and high-speed internet than their higher income counterparts through correlations between greater necessary technology course components and lower academic performance.[60] Whether through not having the appropriate devices or the necessary internet connections to meet applicable deadlines of participation, many post-secondary students across Ontario have reported facing unique accessibility barriers to academic achievements that were not present with their in-person studies.

[60] Sam Andrey et al., "Mapping Toronto's Digital Divide," *The Dias*, January 2021, https://dais.ca/wp-content/uploads/2023/10/TorontoDigitalDivide_Report_Feb2021.pdf.

While online courses were once less prominent across the sector, research indicates that institutions have since moved towards large scale adoptions of such offerings. Although online learning can provide fulfilling educational experiences, it also poses new challenges to access since the initial emergency transition to online learning resulting from the COVID-19 pandemic, there has been a greater prevalence of virtual courses without in-person alternatives. This can serve as a barrier to success for students who do not have the means to fully participate in online learning. Students with insufficient access to technology including personal laptops, or strong internet connections can face greater barriers when participating in online courses. In an effort to work towards fully realizing the positive outcomes online courses can offer students, OUSA recommends that the provincial government provide envelope funding to institutions to support institutional strategies that enhance student's ability to engage with online courses, such as technology loan programs.

The aforementioned COVID-19 pandemic represents one instance of large scale transition to online learning in an emergency situation. However, there are many non-emergency situations in which courses can and have been switched to an entirely online delivery mode. Current quality assurance criteria for changing a course's mode of delivery to online however does not require appropriate consideration of instructional support needs or student accessibility needs. Understanding the accessibility issues in online learning environments that continue to create barriers for some students as the delivery method is remains commonplace. Thus, OUSA recommends that the Ontario Universities Council on Quality Assurance (OUCQA) should amend the Protocol for Major Modifications to require assessment of existing criteria for changing a course from in-person to online.

PEDAGOGY RESEARCH, INNOVATION, AND GUIDANCE

Principle: The unique pedagogy of online courses should be considered in their design, development, and delivery.

Principle: Pedagogical innovation is critical to maintaining the quality of post-secondary education.

Concern: Despite the growth of literature on the pedagogy of online learning, gaps persist in instructors' ability to effectively facilitate online courses.

Concern: Universities may lack the resources to effectively support the design, development, and delivery of online courses.

Concern: Online Course formats and pedagogy lag behind the pace of rapid technological change.

Concern: The current Strategic Mandate Agreement and performance-based funding framework is not conducive to pedagogical innovation.

Recommendation: The provincial government should task HEQCO with the establishment and continual review of best-practice recommendations for the design, development, and delivery of online courses.

Recommendation: The provincial government should provide envelope funding to post-secondary institutions to financially assist with innovation and experimentation for online learning in post-secondary environments.

Recommendation: The provincial government should allocate grant funding for institutional bodies

supporting the design, development and delivery of online courses.

Recommendation: MCURES in consultation with institutions should alter Strategic Mandate Agreements, including performance-based funding frameworks, to include specified metrics for assessing pedagogical innovation within online and technology integrated learning.

Pedagogical innovation is critical to maintaining the quality of post-secondary education. Integrating technology to teaching and learning should be beneficial in this manner for both students and instructors. Despite strides towards improvement in online learning environments, 72 percent of surveyed students cited that they preferred in person learning over online due to better quality of instruction.[61]

Research indicates that the jump to large scale integration of digital learning, and the greater prevalence of online course availability, happened quite rapidly after the emergency transition to online learning during the COVID-19 pandemic. Although since that point, digital innovation in the online learning field continues to develop greatly, providing more platforms and tools to access, online course formats and pedagogy continue to lag behind the pace of rapid technological change. Beyond the deficit in general best practices in keeping with rapid change, universities themselves may lack the resources to effectively support the design, development, and delivery of online courses. When surveyed on the availability of professional development opportunities, just over half (52 percent) responded that there was a great deal of resources for institutional LMS system usage, despite the necessity for all educators to use LMS systems.[62] In an effort to provide the resources required to make the most out of the new learning landscape, the provincial government should provide envelope funding to post-secondary institutions to financially assist with innovation and experimentation for online learning in post-secondary environments. If implemented, this recommendation would allow the schools themselves to be at the front of working towards initiatives that will go back to directly benefit their students. However, universities may lack the resources to effectively support the design, development, and delivery of online courses within their own operations. Thus, to ensure schools and their students can reap the benefits of innovation in the field, it is recommended that the provincial government allocate grant funding for institutional bodies supporting the planning and delivery of online courses within their own course offerings.

The digital format allows for, in many instances, unique learning assessments and lesson delivery that can augment a traditional non-participatory learning model. However the unique pedagogy of online courses should be considered in their design, development, and delivery. Beyond the digital literacy skills that are required to create and maintain online classroom, there are distinct pedagogical methodologies and techniques required to successfully foster a safe, innovative, engaging online learning environment. Despite a growth of literature on the pedagogy of online learning, gaps persist in instructors' ability to effectively facilitate online courses. When faculty to were asked to rate their confidence level on "All or most faculty have the skills and know-how to effectively teach in the modality" by the CDRLA, only 23 percent were confident their peers could effectively teach fully online course, 39 percent were confident in hybrid course, and 45 percent were confident in in-person courses with substantial technology integration abilities. This contrasts with 88 percent who were confident in faculties ability to teach in-person courses with minimal technology integration.[63] To assist institutions in training and preparing faculty to navigate the relatively new terrain of holistically online courses, it recommended that the provincial government

[61] Johnson et al., "2024 Pan-Canadian Report on Digital Learning,"
[62] Ibid.
[63] Johnson et al., "2024 Pan-Canadian Report on Digital Learning,"

task HEQCO with the establishment and continual review of best-practice recommendations for the design, development, and delivery of online courses.

An important facet of assisting faculty with implementing and developing further online pedagogy innovation is having larger systemic mechanisms in place to incentivize institutions to do so. An institution's Strategic Mandate Agreement is an agreement a college or university in Ontario enters into with the government to receive their public funding. In 2020 these agreements were modified to include greater emphasis on performance based funding, many of the metrics adopted fail to directly incentivize activities that promote student experience and learning quality.[64] Within the scope of it affects online learning development, a primary concern remains that the current Strategic Mandate Agreement and performance-based funding framework is not conducive to pedagogical innovation. OUSA accordingly recommends that MCURES in consultation with institutions should alter Strategic Mandate Agreements, including performance-based funding frameworks, to include specified metrics for assessing pedagogical innovation within online and technology integrated learning.

EMERGENCY TRANSITIONS TO ONLINE LEARNING

Principle: Students should achieve the same learning outcomes in an online course as they would in a traditionally-delivered or hybrid course.

Principle: The unique pedagogical challenges when transitioning from in-person to online courses should be considered in the design, development, and delivery of online courses wherever possible.

Principle: Technological support for instructors necessary for maintaining the quality of education, should be provided in circumstances of emergency transitions to remote learning.

Principle: Post-secondary institutions should have contingency plans s for emergency transitions to online learning.

Principle: Students affected by emergency transitions to online learning should have the opportunity to build the skills that the digital format did not allow them to practice upon their return to in-person education.

Concern: Emergency transitions to remote learning generally do not allow for adequate preparation time to shift an otherwise in-person course online, affecting the quality of education students receive.

Concern: Emergency transitions to remote learning may present financial challenges/barriers to providing adequate logistical and technological support for instructors

Concern: A course's technological requirements may cause unexpected barriers to student's full participation, which are likely to be exacerbated in circumstances where emergency transitions to online learning have occurred.

Concern: Students in programs that require an in-person format to build certain skills may be disproportionately affected by an emergency transition online.

Recommendation: The provincial government should create reserve grant funding for institutions to facilitate an effective shift to remote course delivery in the case of future emergency transitions to online

[64] Government of Ontario, "College and University Strategic Mandate Agreements," ontario.ca, May 13, 2024, https://www.ontario.ca/page/all-college-and-university-strategic-mandate-agreements#section-1.

learning.

Recommendation: The provincial government should task HEQCO with creating a proactive best practice list for institutions to reference in times of emergency transitions to online learning.

Recommendation: MCURES should mandate that institutions create and regularly review proactive planning that addresses protocol for emergency transitions to online learning.

In most cases within the current post-secondary landscape, online courses remain an optional alternative for students instead of traditional course delivery modalities. However, as the recent COVID-19 pandemic demonstrated, emergency transitions to online learning can take place that necessitate large scale recalibration of courses to an originally intended digital format. Regardless of the unexpected alternation to course delivery, students should be able to expect to achieve the same learning outcomes in an online course as they would in a traditionally-delivered or hybrid course. In order to achieve this and facilitate a smooth as possible expeditious transition post-secondary institutions should have contingency plans for emergency transitions to online learning.

As the COVID-19 pandemic demonstrated, emergency transitions to remote learning generally do not allow for adequate preparation time to shift an otherwise in-person course online, affecting the quality of education students receive. Some programs of study were able to transition to a digital space in a way that met pedagogical goals and engaged student participation. Yet others, particularly those with extensive experiential and hands-on learning components (i.e., STEM fields), struggled to find replicative opportunities for students to gain the skills they were working towards within its traditional delivery. HECQO's report following the last major transition to online learning in 2020 found students overwhelmingly felt the sudden holistically online nature of their courses had a negative effect on their learning.[65] However, subsequent research on students who have since voluntarily enrolled in online courses indicate that student satisfaction within online learning is much higher when there is thoughtful planning with the delivery and pedagogy of such courses.[66] In order to ensure institutions are prepared as possible to conduct swift yet thoughtful transitions to online learning, MCURES should mandate that institutions create and regularly review proactive planning that addresses protocol for emergency transitions to online learning.

Relatedly, planning ahead to create an environment conducive to prepared transition online for the best possible student outcomes. The unique pedagogical challenges when transitioning from in person to online courses should be considered in the design, development and delivery of online courses wherever possible. However the aforementioned STEM courses and programs that similarly rely on exclusively traditional delivery modes may require additional planning. Without appropriate consideration, students in programs that require an in-person format to build certain skills may be disproportionately affected by an emergency transition online. To mediate the issues that can arise with transitions to online, the provincial government should task HEQCO with creating a proactive best practice list for institutions to reference in times of emergency transitions to online learning.

[65] Napierala et al., "Ontario Learning During the COVID-19 Pandemic: Experiences of Ontario First-year Postsecondary Students in 2020-21",
[66] Ibid.

Additionally, a course's technological requirements may cause unexpected barriers to student's full participation, which are likely to be exacerbated in circumstances where emergency transitions to online learning have occurred. Research extensively notes the existence of barriers to students' access to even hybrid learning or online learning components of in-person courses. Thus, as articles published during the COVID-19 pandemic demonstrate, swift emergency transitions can leave students unable to rely on on-campus resources they were previously using and unprepared for without what has become required digital learning resources for them. To combat the shortcomings of emergency transitions, more preparation is need. To that end, OUSA recommends that MCURES mandate that institutions create and regularly review proactive planning that addresses protocol for emergency transitions to online learning.

NON-DEGREE CREDENTIALS

MICRO-CREDENTIALS

Principle: Soft skills gained by micro-credentials should be easily identifiable for prospective students.

Principle: Micro-credentials should be developed by institutions and employers as a viable way for current students to develop and articulate their soft and hard skills

Principle: Micro-credentials offered by post-secondary institutions should be universally accessible and meet established quality standards.

Concern: Micro-credentials remain underrecognized by employers and scarcely offered for undergraduates by many post-secondary institutions, due to a perceived lack of rigour and quality associated with them, limiting the usefulness to students.

Concern: The lack of regulation around micro-credentials leaves students vulnerable to exploitative programs that are of low quality or fraudulent.

Concern: There is a lack of adequate research on the effectiveness of micro-credentials which disincentivizes both students and employers from engaging with them.

Recommendation: MCURES should commission eCampusOntario to undertake a continuous data collection process to measure the effectiveness of micro-credentials in improving employment outcomes.

Recommendation: MCURES should work with institutions to improve the promotion of the eCampusOntario Micro-credential library and student awareness of micro credentials and their effectiveness.

Recommendation: The provincial government should enforce an accreditation and quality control system for micro-credentials using the eCampusOntario and PEQAB frameworks to ensure consistency, transparency, and credibility.

Micro-credentials provide a viable addition to traditional educational pathways by enabling students to develop a variety of skills in a flexible and targeted format. Micro-credentials can assist students in articulating both hard and soft skills to prospective employers and to meet the demands of the current labour market. It is imperative that micro-credentials be offered with quality and accessibility.

Although micro-credentials offer substantial value, micro-credentials remain underrecognized by employers and scarcely offered for undergraduates by many post-secondary institutions, due to a perceived lack of rigour and quality associated with them, limiting their usefulness to students. According to Schultz, most post-secondary institutions have reported offering micro-credentials either as a stand-alone option, or as part of corporate training.[67] However, post-secondary institutions are targeting working adults looking to change their occupation (92%) and employees/potential employees of industry partners (91%) for their micro-credential programming.[68] While this indicates an increase in institutional engagement, it also illustrates that micro-credentials are not necessarily produced or widely promoted for first-entry undergraduate students. This leaves a gap in relevance and accessibility for post-secondary students. Furthermore, there is a lack of adequate research on the effectiveness of micro-credentials which disincentivizes both students and employers from engaging with them. An examination of Micro-credentials that were posted on the eCampusOntario portal shows that there is a lack of clear comparable data about the learning.[69] Students may be unwilling to spend time or money on micro-credentials with uncertain rewards, which results in institutions feeling hesitant in expanding their offerings. To address this, MCURES should commission eCampusOntarioto undertake a continuous data collection process to measure the effectiveness of micro-credentials in improving employment outcomes. The lack of regulation around micro-credentials leaves students vulnerable to exploitative programs that are of low quality or fraudulent. Therefore, the provincial government should enforce an accreditation quality control system for micro-credentials using the eCampusOntario and PEQAB frameworks to ensure consistency, transparency, and credibility.

Micro-credentials provide students with the opportunity to develop and demonstrate skills and knowledge to support career development. To ensure high quality and value, micro-credentials should be developed by institutions and employers as a viable way for students to develop and articulate their soft and hard skills. In a study conducted by Schultz, the top three experiences of a microcredential included: led to personal satisfaction with new knowledge; led to personal satisfaction with a new skill; and helped to obtain a job.[70] Micro-credentials offer a flexible approach to acquire job-relevant skills while attaining measurable results such as employment and confidence in newly acquired skills. They also provide a substantial benefit enhancing a students' professional and personal growth. Through the collaboration of institutions and employers, micro-credentials would prepare students to meet the demands of the labour market and equip them with relevant and applicable competencies. According to a 2021 study conducted by the Higher Education Quality Council of Ontario (HECQO), 60% of employers responded that micro-credentials would increase their confidence in a prospective employee's skills, and two-thirds saying they see micro-credentials as highly favourable if they are directly related to the job and competency based.[71] In another survey conducted by HECQO, respondents acknowledged the value of short and focused programs presently and in the future, with 78% of respondents recognizing that upskilling and continual education is important for "future-proofing their careers.[72] The cost of micro-credentials may also pose a barrier for learners limiting access. Only 25% of respondents would be willing to spend more than $250

[67] Christie Schultz, "Experiences of Microcredentials in Canada: Perspectives, Possibilities, and a Case for National Data Collection," *International Review of Applied Economics* 38, no 4 (2024): 410-421. https://doi.org/10.1080/02692171.2024.2368793
[68] Ibid.
[69] Alex Usher, Iain Wilson, Tiffany MacLennan, Aidana Izhanova, *Approaches to Stackability of Micro-Credentials: Options for Ontario* (Toronto: Higher Education Strategy Associates), 2023, prepared for the Ontario Council on Articulation and Transfer (ONCAT). https://www.oncat.ca/sites/default/files/media-files/r2246_micro-credentials_final_report_21-3-23.pdf
[70] Christie Schultz, Experiences of Microcredentials in Canada: Perspectives, Possibilities, and a Case for National Data Collection,"
[71] Jackie Pichette, Sarah Brumwell, Jessica Rizk, Steven Han, *Making Sense of Microcredentials*, (Toronto: Higher Education Quality Council of Ontario), 2021, https://heqco.ca/pub/making-sense-of-micro-credentials/
[72] Ibid.

on micro-credentials.[73] This illustrates the importance of ensuring that micro-credentials are not only of high quality and value, but also remain accessible and affordable to learners. However, it is also important to consider that nearly a third of respondents indicated that they have access to financial support for professional learning through their employer.[74] This serves as an indication that micro-credentials are visibly valued by employers. Thus it is important to ensure students are aware of the potential benefits of micro-credentials, as well as the resources that may be accessible to them. MCURES should work with institutions to improve the promotion of the eCampusOntarioMicro-credential library and student awareness of micro-credentials and their effectiveness.

OPEN EDUCATIONAL RESOURCES

OERS AS AN APPROACH TO AFFORDABILITY

Principle: All students should have equitable opportunity to succeed and prosper during their education.

Principle: Students should have access to high-quality course materials which are required or recommended for their courses regardless of their financial situation.

Principle: As legitimate and affordable alternatives to expensive textbooks and course materials, awareness of OERs should be promoted by the provincial government and post-secondary institutions.

Concern: The rising cost of educational materials, such as textbooks, imposes significant financial barriers for students, particularly low-income students, when pursuing post-secondary education.

Concern: Students often drop courses, choose not to enrol, or change their course selection due to the cost of traditional course materials.

Concern: Instructors at post-secondary institutions are uninformed about the effectiveness of OERs, and unaware of their availability through the eCampusOntario Open Library platform resulting in limited adoption of its resources.

Concern: The provincial government has not provided sufficient incentives to post-secondary institutions nor faculty to support the wide use and adoption of OERs.

Concern: Teaching instructors are more likely to require textbooks they have authored as course materials in order to maximize their personal profits, becoming less inclined to adopt OERs.

Recommendation: The provincial government should incentivize institutions through OER adaptation and development grants that encourage the creation of OERs, and replace expensive course materials with free and low-cost alternatives.

Recommendation: The provincial government should develop predictable funding for eCampusOntario to expand its OER library, prioritizing high-enrolment courses.

Recommendation: The provincial government, in conjunction with eCampusOntario, should hold institutional forums with administrators and instructors across faculties to raise awareness of OERs,

[73] ibid.
[74] Ibid.

highlight their benefits, and answer outstanding questions.

Recommendation: The provincial government should mandate that institutions report the number of courses using OERs and their enrolment to eCampusOntario, on an annual basis, and offer monetary incentives when institutions reach a certain threshold.

Recommendation: The provincial government should expand envelope funding to post-secondary institutions to help offset the high costs associated with the initial development of OERs.

All students should have equitable opportunity to succeed and prosper during their education. In pursuing post-secondary education, one of the most prominent barriers to student enrolment and success is affordability. The rising cost of educational materials, such as textbooks, imposes significant financial barriers for students, particularly low-income students, when pursuing post-secondary education. On average, students have spent $588 CAD on books each year; these additional expenses put financial strain on students as they struggle to sustain themselves through their education.[75] Students often drop courses, choose not to enrol, or change their course selection due to the cost of traditional course materials. OERs however, reduce or remove expenses for published textbooks, course packs, and homework systems, as well as enabling access to large libraries of high-quality educational resources, OERs act as a relief for students facing financial barriers.[76] To expand the use of OERS for the financial benefit of students, OUSA recommends thats the provincial government incentivize institutions through OER adaptation and development grants that encourage the creation of OERs, and replace expensive course materials with free and low-cost alternatives. Additionally, OUSA recommends that the provincial government develop predictable funding for eCampusOntario to expand its OER library, prioritizing high-enrolment courses.

As legitimate and affordable alternatives to expensive textbooks and course materials, awareness of OERs should be promoted by the provincial government and post-secondary institutions. However, instructors at post-secondary institutions are uninformed about the effectiveness of OERs, and unaware of their availability through the eCampusOntario Open Library platform resulting in limited adoption of its resources. As an educational tool, OERs benefit from their openness; this capacity means they have a fundamental ability to Reuse, Revise, Remix, their content, and the ability for Redistribution, and Retention of OER copies.[77] OERs can be consistently adapted and refined enabling them to meet both the integration of up-to-date information and research, as well as remaining malleable to meet the specific needs of a course.[78] Despite the quality assurance measures and relevant content, the provincial government has not provided sufficient incentives to post-secondary institutions nor faculty to support the wide use and adoption of OERs. More work needs to be done to further understanding and adoption by instructors. To improve instructor understanding of OERs, the provincial government, in conjunction with eCampusOntario, should hold institutional forums with administrators and instructors across faculties to raise awareness of OERs, highlight their benefits, and answer outstanding questions.

One of the additional barriers that adoption faces is instructor authored textbooks. Teaching instructors

[75] Andrade-Dixon and Suthakaran, *Affordability: Results from the 2022 Ontario Undergraduate Student Survey*
[76] Mark Brown, "The cost of a Canadian university education in six charts," *MacLean's*, 2018 https://macleans.ca/education/the-cost-of-a-canadian-university-education-in-six-charts/
[77] eCampusOntario. "Affordable Learning, Lasting Impact: How OER and Partnerships Save Students Money," n.d., *eCampusOntario*, https://ecampusontario.ca/wp-content/uploads/2024/11/eCO-Affordable-Learning-Lasting-Impact-EN-tagged-1.pdf
[78] European Network for Catalysing Open Resources in Education, "Quality for the Future OER Ecosystem State of the Art Report: Quality in European OER Ecosystems," ENCORE+, 2023, https://encoreproject.eu/2024/02/27/state-of-the-art-report-quality-in-the-european-oer-ecosystem/

are more likely to require textbooks they have authored as course materials in order to maximize their personal profits, becoming less inclined to adopt OERs. Expanding the use of new learning resources that differ from traditional options needs institutional and provincial support that is equally as attractive as the monetary and professional acumen building qualities that publishing traditional textbooks garner. To incentivize instructors to adopt OERs, OUSA recommends that the provincial government should mandate that institutions report the number of courses using OERs and their enrolment to eCampusOntario, on an annual basis, and offer monetary incentives when institutions reach a certain threshold. Additionally, the provincial government should expand envelope funding to post-secondary institutions to help offset the high costs associated with the initial development of OERs. As OER development can often be a costly and time consuming initially, these incentives would make their creation more attractive to instructors, akin the compensation received at the beginning stages of a book contract*.

ENSURING AND VALIDATING QUALITY OF OERS

Principle: All educational resources, regardless of format, should be high quality.

Principle: The post-secondary sector should continue to adopt and promote the development of high quality OERS.

Concern: There is a perception and associated stigma that OERs are of lower quality than traditional educational resources, which acts as a barrier to OER adoption, development, and adaptation.

Concern: OERs available to course instructors in Ontario are often left underutilized due to a lack of awareness regarding efficacy and quality of OERs.

Recommendation: The provincial government should develop quality assurance guidelines for OERs to aid in consistent standards for the development of resources.

Recommendation: The provincial government should work with faculty stakeholders including but not limited to the COU and Ontario Confederation of University Faculty Associations, to gather and distribute qualitative and quantitative data on OER quality to institutions.

Recommendation: The provincial government should increase funding to the eCampusOntario Open Library platform so as to improve upon its OER peer-review and adoption process.

All educational resources, regardless of format, should be high quality. Ensuring the quality of OERs and promoting their validity is key to expanding their use As it stands, there is a perception and associated stigma that OERs are of lower quality than traditional educational resources, which acts as a barrier to OER adoption, development, and adaptation. However, OERs undergo quality assurance assessments similar to that of traditional textbooks. Existing strategies for validating the quality of OERs include; an OER is first used as a base, and then overwritten in order to be refined or expanded upon, while a version history of the document is maintained for tracking changes made to the original; another approach is the creation of derivative works from a source OER that remains unchanged and is explicitly identified and referenced as the source work.[79] Issues arising from validation efforts include challenges with tracking changes in data-keeping, as well as lack of capacity to effectively review quality when attempting to

[79] eCampusOntario. “Affordable Learning, Lasting Impact: How OER and Partnerships Save Students Money,”

combine one or more OERs to create a new OER.[80] These measures exist and aim to provide educators with assurance of OER quality. To further bolster sector confidence in OERs, OUSA recommends that the provincial government should develop quality assurance guidelines for OERs to aid in consistent standards for the development of resources. Additionally, the provincial government should increase funding to the eCampusOntario Open Library platform so as to improve upon its OER peer-review and adoption process.

The post-secondary sector should continue to adopt and promote the development of high quality OERS. OERs available to course instructors in Ontario are often left underutilized due to a lack of awareness regarding efficacy and quality of OERs. When adopting new resources, adequate promotion is integral to ensure potential users are aware of the benefits of the product; OERs are no different. The importance of ensuring and validating the quality of OERs is actively taking place on the national as well as international stage to garner support for OERs. The United Nations Educational, Scientific and Cultural Organization (UNESCO) highlights coordinated efforts through the Dubai Declaration as well as the OER Dynamic Coalition in addressing effective ongoing OER integrations. The OER Dynamic Coalition aims to support networking and sharing of information to create synergies around the 5 areas of action of the recommendation: (i) building capacity of stakeholders to create, access, re-use, adapt and redistribute OER; (ii) developing supportive policy; (iii) encouraging inclusive and equitable quality OER; (iv) nurturing the creation of sustainability models for OER, and (v) facilitating international cooperation.[81] These practices are ones that are being adopted globally and can be used as inspiration to ensure Ontario maintains its position as a international destination for education. To facilitate the quality maintenance, The provincial government should work with faculty stakeholders including but not limited to the COU and Ontario Confederation of University Faculty Associations, to gather and distribute qualitative and quantitative data on OER quality to institutions.

OER USER SATISFACTION METRICS AND DATA COLLECTION

Principle: OERs should be high quality resources equivalent to, or better than, traditional educational resources used at post-secondary institutions.

Principle: Data collection surrounding the use of OERs improves its quality, integration, and user satisfaction, and so it is imperative for OERs that data collection is an active and ongoing process.

Concern: There is currently no standardized reporting structure for institutions to measure the usage, concerns, and success rates (e.g., financial impact) of OERs.

Concern: As all OER adoption reporting is voluntary for institutions and there is no centralized database, there are gaps in eCampus' ability to effectively collect and publish data to improve the efficacy of OERs.

Recommendation: The provincial government should provide funding for institutions that report data regarding both students' and faculty members' experiences with OERs to eCampusOntario in a standardized and measurable format in order to improve upon OER quality.

Recommendation: The provincial government should provide eCampusOntario with additional funding for the continued collection, analysis, and publication of institutional user satisfaction data as well as with distributing the findings to post-secondary institutions.

[80] Ibid.
[81] UNESCO. "Open Educational Resources" https://www.unesco.org/en/open-educational-resources

OERs should be high quality resources equivalent to, or better than, traditional educational resources used at post-secondary institutions. OER's have the unique ability to be updated quickly wupdated and adapted in order to refine their legibility, translatability, and breadth of information.[82] They are also a strong cost saving measure for students, eCampusOntario estimates that the introduction of OERs has saved students $38,778,436 to date.[83] However, As all OER adoption reporting is voluntary for institutions and there is no centralized database, there are gaps in eCampus' ability to effectively collect and publish data to improve the efficacy of OERs.t Currently, there are effective OER data collection frameworks that have already been established by institutions such as OpenEd MB to set an initial standard for OER data gathering.[84] Through which, OER data collection and user satisfaction analysis should incorporate information on; planning, methods, analysis, and reporting. Currently however, post-secondary institutions are not incentivized to report OER data or user satisfaction metrics with eCampusOntario and thereby not enough data is being gathered. To improve reporting levels, OUSA recommends that the provincial government provide funding for institutions that report data regarding both students' and faculty members' experiences with OERs to eCampusOntario in a standardized and measurable format in order to improve upon OER quality.

Furthermore, eCampusOntario will require funding in order to implement data collection tools and databases that are able to meet and adapt to the current and future needs of OER development. As such, the provincial government should provide funding for institutions that report data regarding both students' and faculty members' experiences with OERs to eCampusOntario in a standardized and measurable format in order to improve upon OER quality; and the provincial government should provide eCampusOntario with additional funding for the continued collection, analysis, and publication of institutional user satisfaction data as well as with distributing the findings to post-secondary institutions.

OER ADOPTION, ADAPTATION, AND CREATION ACCREDITATION

Principle: The responsibility of promoting and facilitating broader uptake and development of OERs across Ontario post-secondary institutions is that of both individual institutions and the provincial government.

Principle: Faculty should feel supported and empowered by their institution to adopt, adapt, and/or create OERs.

Principle: Increasing the adoption of OERs in Ontario's postsecondary education system should be balanced with an instructor's right to select the educational resources they feel best aligns with their course.

Concern: Post-secondary institutions do not adequately incentivize faculty to commit to the development and implementation of OERs at their institutions.

Concern: Professors may be disincentivized from using OERs due to the risk of harm they pose to personal financial gains from textbook authorship.

Recommendation: The provincial government should work with the Ontario Confederation of University Faculty Association (OCUFA) and COU to develop meaningful incentives geared towards faculty for OER development.

[82] OpenEd, "OER Data Collection Toolkit," *OpenEd,* https://pressbooks.openedmb.ca/oerdata/
[83] Open Library, "Impact," *eCampusOntario,* n.d., https://openlibrary.ecampusontario.ca/impact/
[84] OpenEd. "OER Data Collection Toolkit,"

Recommendation: The provincial government should work with the Council of Ontario Universities to develop a best practice system for incentivising and recognizing OER development.

Recommendation: The creation and promotion of OERs should be included in Ontario's Strategic Mandate Agreements as a metric for effective pedagogy and faculty innovation, linking performance-based funding to increasing financial access to education.

Recommendation: The provincial government should provide post-secondary institutions with funding for OER adoption, adaptation and creation grants awarded to faculty who integrate or develop OERs, thereby facilitating OER uptake.

Recommendation: The provincial government should increase funding to eCampusOntario's Open library to improve upon its OER review process, digital resource editing capacity, and its diversity of texts.

The responsibility of promoting and facilitating broader uptake and development of OERs across Ontario post-secondary institutions is that of both individual institutions and the provincial government. Currently however Post-secondary institutions do not adequately incentivize faculty to commit to the development and implementation of OERs at their institutions. Faculty should feel supported and empowered by their institution to adopt, adapt, and/or create OERs. In order to address this absence, the provincial government should; work with OCUFA and the COU to create OER development incentives; work with the COU to develop a best practice system for incentivization and recognition of OER development; include OERs as a metric for effective pedagogy and faculty innovation within Ontario's Strategic Mandate Agreements; provide post-secondary institutions with adoption and adaptation grants; and increase funding to eCampusOntario's Open library as the primary mechanism toward achieving these goals.

Increasing the adoption of OERs in Ontario's postsecondary education system should be balanced with an instructor's right to select the educational resources they feel best aligns with their course. One of the barriers to OER adoption is professors may be disincentivized from using OERs due to the risk of harm they pose to personal financial gains from textbook authorship. However, OER adoption and adaptation grants are an effective measure that various institutions have implemented in order to spur OER innovation and integration. Institutions such as Brock University in Ontario, Kwantlen Polytechnic University in British Columbia, and Atlantic OER, are just some examples of how these development grants can help OERs flourish. Adoption grants for OERs have been implemented at around $500-$1,500 CAD (+/-), while OER adaptation grants at around $4,000-$6,000 CAD (+/-) .[85] These resources enable the expansion of OER resources and can compress down the costs of course materials like textbooks for hundreds of students down to the expenses of the grant funding. As such, the provincial government should provide post-secondary institutions with funding for OER adoption, adaptation and creation grants awarded to faculty who integrate or develop OERs, thereby facilitating OER uptake.

As the primary mechanism for OER development and centralization within Ontario's OER initiatives, the provincial government should increase funding to eCampusOntario's Open Library to support the advancements and integration of these tools. In 2020 the Ontario Ministry of Colleges and Universities

[85] Brock University Library, "OER Grant Program," *Brock University,* 2025, https://brocku.ca/library/oer/grants/; Kwantlen Polytechnic University, "Open Education Grant Program," *Kwantlen Polytechnic University,* 2025; Atlantic OER, "Grants," *Atlantic OER,* 2025, https://www.kpu.ca/open/grants

contributed a $50 million investment toward eCampusOntario and the Government of Ontario's Virtual Learning Strategy (VLS) to drive growth and advancement within virtual learning across post-secondary institutions (5). This funding helped to set foundations for OER advancement within Ontario, and to fund projects across all categories of the VLS (5). In order to further expand upon the work of eCampusOntario and to continue to support OER advancement, the provincial government should increase funding to eCampusOntario's Open library to improve upon its OER review process, digital resource editing capacity, and its diversity of texts.

ONLINE LEARNING MATERIALS

ENHANCING ACCESSIBILITY OF ONLINE LEARNING MATERIALS

Principle: Online learning tools should enhance the accessibility and quality of education when used effectively.

Principle: Students should be informed of the accessibility features available through online learning tools.

Principle: Online learning tools should offer flexibility, affordability, and adaptive learning opportunities for all post-secondary students.

Concern: Online learning tools are often not developed or appraised to meet the same standards of quality as traditional, physical learning tools.

Concern: Inconsistencies in the development and use of online learning tools reduces educational quality and create accessibility barriers for students

Concern: Online learning tools may not always be compatible with common assistive technologies and devices, creating accessibility barriers for students.

Concern: Accessibility features associated with online learning tools are often not communicated to students in a clear and timely fashion.

Recommendation: The Ontario Universities Council on Quality Assurance , in partnership with eCampusOntario and Contact North, should develop best practices for the development, implementation, and quality appraisal of online learning tools with a focus on accessibility, effectiveness, and consistency within and across institutions.

Recommendation: The Ontario Universities Council on Quality Assurance should integrate best practices and Universal Design Learning standards concerning online learning tools into the Quality Assurance Framework used for Institutional Quality Assurance Processes.

Recommendation: The Ministry of Colleges, Universities, Research Excellence and Security should fund and work with eCampusOntario and Contact North to publish accessible and effective digital literacy education programs for instructors and students in Ontario post-secondary institutions.

Recommendation: The Ministry of Colleges, Universities, Research Excellence and Security should create and publish best practices, based on consultations with students and post-secondary institutions, on how post-secondary institutions should identify in advance and clearly communicate to students the accessibility features of the online learning tools needed to meet provincial AODA requirements.

Online learning materials include programs, applications, and/or technologies that assist a student's understanding of course material.[86] The expansion of these resources into post-secondary has marked their place as a valuable partner in education. However, the benefits of these materials can be completely negated if they are not also fully accessible for all students. According to OUSA's 2024 Ontario Undergraduate Student Survey, 77 percent of students found their online course materials to be "very" or "somewhat" accessible, which means 23 percent felt neutral about the accessibility of their materials or found them inaccessible.[87]

The root of this issue can be attributed to the quality assurance standards (or lack thereof) for online materials within the classroom. The Ontario Universities Council on Quality Assurance (OUCQA) is the provincial body responsible for setting curricular standards within post-secondary education, ensuring that academic programs are designed and delivered in ways that help students reach desired learning outcomes for their degree.[88] The OUCQA uses the Quality Assurance Framework to oversee the process of approving both new programs as well as major modifications to existing ones.[89] A part of the approval process for new programs states that applicants must describe program requirements which include the "appropriateness of the proposed mode(s) of delivery to facilitate students' successful completion of the program-level learning outcomes."[90] Online learning materials, including slide decks, arguably constitute a component of the mode of delivery, yet there is nothing in the Framework that asks applicants to speak to the accessibility or breadth of online materials being used. Similarly, for changes to existing programs, a major modification can be classified if there is "significant changes to the program's delivery, including to the program's faculty and/or to the essential physical resources as may occur, for example, where there have been changes to the existing mode(s) of delivery (e.g., different campus and/or online/hybrid delivery…)."[91] Reviewing the accessibility of online learning materials, a critical component for program delivery, should be an essential part of the quality assurance process as it plays a significant role in shaping student outcomes. This is why OUSA recommends the OUCQA, in partnership with eCampusOntario and Contact North, develop best practices for the development, implementation, and quality appraisal of online learning tools with a focus on accessibility, effectiveness, and consistency within and across institutions, as well as integrate best practices and Universal Design Learning (UDL) standards concerning online learning tools into the Framework used for Institutional Quality Assurance Processes. British Columbia's Ministry of Education has a set of standards for online learning content that could be used as a blueprint for the Government of Ontario.[92] In order to improve transparency with students, the Ministry should also create and publish best practices, based on consultations with students and post-secondary institutions, on how post-secondary institutions should identify in advance and clearly communicate to students the accessibility features of the online learning tools needed to meet provincial AODA requirements. This would be a direct, student-facing way to demonstrate the government's and institutions' commitment to increasing accessibility in oversight mechanisms of teaching quality.

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[86] Kathryn Brenner and Jennifer Moon, "Digital Learning Tools | Definition, Uses & Types," *Study.com*, last updated November 21, 2023, https://study.com/academy/lesson/what-are-online-learning-tools-definition-types-examples.html
[87] Unpublished results from OUSA 2024 Ontario Undergraduate Student Survey.
[88] Ontario Universities Council on Quality Assurance, "What We Do in Quality Assurance," *Ontario Universities Council on Quality Assurance,* https://oucqa.ca/what-we-do/what-we-do-in-quality-assurance/
[89] Ontario Universities Council on Quality Assurance, "Quality Assurance Framework," *Ontario Universities Council on Quality Assurance,* last modified September 29, 2023, https://oucqa.ca/wp-content/uploads/2021-Quality-Assurance-Framework.pdf
[90] Ibid.
[91] Ibid.
[92] BC Ministry of Education, "Standards for Online Learning Content in British Columbia," *Government of British Columbia,* July 2021, https://www2.gov.bc.ca/assets/gov/education/administration/kindergarten-to-grade-12/online-learning/ol_standards_content.pdf

Consequently, the effectiveness and uptake of these online learning materials rests on how faculty communicate their use to students. This underscores not only the importance of digital literacy for teaching staff but also the ways in which they establish rapport with their classes. Many students in OUSA's survey commented about the disconnection they felt with their instructors through online materials; one noted, "Students are not as motivated and are not learning due to some professors being unable to establish the right materials and teaching techniques. They may be well versed in the subject but it does not always translate into teaching others" while another said "I have been in two different programs (engineering and now in computer science) and although some professors are very passionate and well versed, there are instances where the material is just being read of the Powerpoint slides and not actively taught."[93] Some organizations have put a focus on growing digital literacy skills such as Contact North, who have reached over 200,000 instructors and students through their digital literacy programs, as well as the federal government, who invested $17.6 million in 2023 for the growth of digital literacy programs.[94] The province has fallen behind in this regard, and with the push to ensure students are graduating job-ready and with in-demand skills, it is equally important that instructors have digital literacy to model real-life application of these skills, strengthen teaching quality, and improve learning outcomes. As such, MCURES should fund and work with eCampusOntario and Contact North to publish accessible and effective digital literacy education programs for instructors and students in Ontario post-secondary institutions.

OPEN SOURCE LEARNING MANAGEMENT SYSTEMS

Principle: Open-source Learning Management Systems (LMS), are more cost-effective and adaptable than licensed, proprietary systems.

Principle: LMS are useful and dynamic educational tools in post-secondary education as they enhance pedagogical quality and experience by creating immersive learning environments when used proficiently

Principle: Consistent implementation and use of LMS across various education programs and courses within an institution ensures ease of access and use for all students.

Concern: Proprietary LMS represent a large portion of LMS usage in Ontario creating an additional cost for students

Concern: LMS are often used as basic content delivery platforms rather than dynamic and immersive learning environments.

Concern: Faculty and instructors frequently lack the technical skills and institutional support needed to fully leverage LMS capabilities, diminishing their impact on postsecondary education quality

Concern: LMS are often used and implemented to varying degrees and manners within institutions, creating confusion and barriers for students, negatively impacting learning experiences, and reducing educational quality.

Recommendation: MCURES, in collaboration with eCampusOntario and Contact North, should

[93] Unpublished student quotes from OUSA's 2024 Ontario Undergraduate Student Survey.
[94] Contact North, "Over 200,000 Faculty and Students Now Use Contact North | Contact Nord's Four Free, Easy-to-Use AI-Powered Apps for Education and Training," *Cision,* April 9, 2024, https://www.newswire.ca/news-releases/over-200-000-faculty-and-students-now-use-contact-north-contact-nord-s-four-free-easy-to-use-ai-powered-apps-for-education-and-training-826270654.html; Innovation, Science and Economic Development Canada, "Government of Canada announces funding for training to help thousands of Canadians get online," *Government of Canada,* March 13, 2023, https://www.canada.ca/en/innovation-science-economic-development/news/2023/02/government-of-canada-announces-funding-for-training-to-help-thousands-of-canadians-get-online.html

encourage and provide technical support for the use of open-source LMS in post-secondary education.

Recommendation: MCURES, in partnership with eCampusOntario, Contact North, and the Ontario Universities Council on Quality Assurance (OUCQA), should enhance institutional capacity and knowledge on effective LMS use while developing quality standards and best practices for their selection and implementation.

Recommendation: The Ontario Universities Council on Quality Assurance (OUCQA) should integrate quality standards and best practices around LMS into the Quality Assurance Framework to ensure consistent application across Ontario post-secondary institutions.

Open-source Learning Management Systems (LMS) are useful and dynamic educational tools in post-secondary education as they enhance pedagogical quality and experience by creating an immersive learning environment when used proficiently. Learning management systems have become arguably the most important software system for post-secondary institutions in recent years.[95] According to data collected by Listed Tech, Moodle- an open source LMS originating in Australia- was the most popular LMS in Canada, used by 39% of post-secondary institutions.[96] However, these resources are often underutilized in post-secondary education. LMS are often used as basic content delivery platforms rather than dynamic and immersive learning environments. Learning management systems are often underutilized despite them being standard components of higher education.[97] This is partly due to faculty and instructors frequently lacking the technical skills and institutional support needed to fully leverage LMS capabilities, diminishing their impact on post-secondary education quality. To address these challenges, MCURES, in partnership with eCampusOntario, Contact North, and the Ontario Universities Council on Quality Assurance (OUCQA), should enhance institutional capacity and knowledge on effective LMS use while developing quality standards and best practices for their selection and implementation.

The utilization of LMS can become expensive. Unlike open-source LMS, proprietary LMS systems must be licensed to institutions for their use. While prices vary, it can cost institutions a substantial amount per year, for example in 2019 when WebCT was acquired by Blackboard, a popular LMS company, the Université de Sherbrooke was quoted for over $100,000 per year for approximately 30,000 students. These costs are then absorbed by students as a part of the fees they pay towards their institutions. Proprietary LMS represent a large portion of LMS usage in Ontario; inadvertently increasing the cost of post-secondary education for students across the province. In contrast, open-source LMS are more cost-effective and adaptable than licensed, proprietary systems. An analysis of the cost difference between Moodle and Blackboard was conducted, and it was found that that open-source solution would cost just 25% of the proprietary one.[98] As a result, MCURES, in collaboration with eCampusOntario and Contact North, should encourage and provide technical support for the use of open-source LMS in post-secondary education.

Inconsistent implementation of LMS can serve as a barrier that prevents students from succeeding. Consistent implementation and use of LMS across various education programs and courses within an

[95] Diane Peters, "Learning Management Systems are More Important Than Ever," *University Affairs*, 2021, https://universityaffairs.ca/features/learning-management-systems-are-more-important-than-ever/
[96] Ibid.
[97] Patricia Simon, Juming Jiang, Luke Fryer, Ronnel King, Cherry Frondozo. "An Assessment of Learning Management System Use in Higher Education: Perspectives from a Comprehensive Sample of Teachers and Students," *Technology, Knowledge, and Learning*, 30, 2024: 741-767. https://doi.org/10.1007/s10758-024-09734-5
[98] Diane Peters, 2021. "Learning Management Systems are More Important Than Ever,"

institution ensures ease of access and use for all students. However, LMS are often used and implemented to varying degrees and manners within institutions, creating confusion and barriers for students, negatively impacting learning experiences, and reducing educational quality. Maintaining consistency may become increasingly challenging when instructors experiment with different platforms and additional software systems to satisfy evolving pedagogical demands. Users want to see more support for synchronous learning in particular, but a majority of these tools are not built into the LMS and need to be accessed separately.[99] Students may become increasingly fragmented as a result of the dependence on external resources, especially if the technology used is poorly integrated or not regularly used in different courses. It can become challenging for students to interact with instructors, and access the material and content needed for success if they encounter different systems across their courses. To promote consistency and improve learning outcomes, the Ontario Universities Council on Quality Assurance (OUCQA) should integrate quality standards and best practices around LMS into the Quality Assurance Framework to ensure consistent application across Ontario post-secondary institutions.

TEACHING SKILLS & INSTRUCTOR SUPPORT

Principle: All instructors and faculty should be proficient in using technology-enabled learning tools to ensure equitable, high-quality education.

Principle: Post-secondary institutions should have the infrastructure/resources to provide robust and effective training as well as support to faculty and instructors for the use of technology-enabled learning systems, resources, and tools.

Principle: Institutions should adequately support faculty and staff in enhancing their knowledge on emerging technologies such as AI.

Concern: Instructors and faculty often lack the technical skills and support needed to effectively use technology-enabled learning systems, creating barriers to accessible and equitable education.

Concern: Faculty and instructors are unfairly expected to develop and implement technology-enabled learning systems, without sufficient institutional supports.

Concern: Educators who lack education on emerging technology are often more distrustful and punitive towards students due to fear regarding their capacity.

Concern: Instructors and faculty lack adequate training from their institutions on how to address the ethical concerns associated with AI or how to effectively use artificial intelligence in course design and teaching

Recommendation: The provincial government should provide special purpose grant funding to post-secondary institutions' teaching and learning departments to enhance the quality, effectiveness, and use of resources, tools, coaching, and training around technology-enabled learning offered to faculty, instructors, and staff.

Recommendation: The Ministry of Colleges, Universities, Research Excellence and Security should provide eCampusOntario and Contact North with funding to work with post-secondary institutions and stakeholders to launch an online and blended learning program for faculty and instructors.

[99] Ibid.

Recommendation: The Ministry of Colleges, Universities, Research Excellence and Security should, after consultation with the OCUFA and COU, provide grants to post-secondary institutions for successful and widespread completion of the aforementioned dedicated and comprehensive certificate program by faculty and instructors.

Recommendation: The provincial government should provide institutions with funding for professional development programs focused on AI literacy, including its integration into course creation and ethical use, to empower instructors and address existing knowledge gaps.

As the primary deliverers of education on post-secondary campuses, faculty are in a unique position to leverage technology as a valuable instructional aid. Resources like videos, simulations, and slide decks have vastly changed how students can engage with and understand their educational content. For disabled students in particular, technology has been a useful study tool and helps them reach their full academic potential.[100] Ontario's Universities have even created an Educator's Accessibility Toolkit which recommends instructors to use video, audio, and clickers, among others, to better consider students' accessibility to learning.[101]

However, instructors do not always maximize the use of technology nor do they let students reap the benefits of technology in learning. For example, in an article from *The Gazette*, students at Western University have professors who have outright banned laptops from the classroom in an effort to reduce direct and indirect distractions.[102] As the article points out, not only do measures like this prevent students with disabilities from fully participating in their education, it also works against the institutions' commitment to accessibility.[103] Integrating technology into education is also influenced by a few factors that rely on institutional supports such as time and finances (for professional development and licensing).[104] Without these, faculty may struggle with capacity to adopt technology into the classroom. This is why the provincial government should provide special purpose grant funding to post-secondary institutions' teaching and learning departments to enhance the quality, effectiveness, and use of resources, tools, coaching, and training around technology-enabled learning offered to faculty, instructors, and staff. This should prioritize tools that support students' accessibility needs, engagement with course content, and appropriate use of AI (as described below). Along the same lines, MCURES should provide funding: (a) to eCampusOntario and Contact North to launch an online and blended learning program for faculty and instructors and (b) to post-secondary institutions for successful and widespread completion of the dedicated and comprehensive certificate program. The implementation of the program should be planned in consultation with OCUFA and COU, and ultimately, would offer an avenue for instructors to engage in the aforementioned professional development with experts in technological pedagogies.

Conversations about instructional use of technology have rapidly included the merit of using AI. As OUSA's Artificial Intelligence policy outlines, faculty should be permitted to use AI in the classroom as long as it abides by institutional policy and guidelines that would regulate its appropriate use. This would

[100] Jane Seale et al., "'Dreaming in colour': Disabled higher education students' perspectives on improving design practices that would enable them to benefit from their use of technologies," *Education and Information Technologies* 26 (2021), https://doi.org/10.1007/s10639-020-10329-7.
[101] Ontario's Universities (Accessible Campus), "Creating Accessible Lectures," Council of Ontario Universities, https://accessiblecampus.ca/tools-resources/educators-tool-kit/teaching-tips/creating-accessible-lectures/
[102] Edie Bray, "Op-Ed: Some profs are stuck in the stone age," *The Gazette*, January 15, 2025, https://westerngazette.ca/opinion/op-ed-some-profs-are-stuck-in-the-stone-age/article_ff4c50b0-d375-11ef-b305-cb2488081375.html
[103] Ibid.
[104] Kevin Dougherty, "Factors That Influence College Faculty to Adopt Digital Technologies in Their Practice," *Higher Education in Transformation Conference* (Dublin, Ireland), 2015, https://files.eric.ed.gov/fulltext/EJ1299932.pdf

also prevent faculty from using AI in unethical ways such as student assessments. Rather, AI can be used by instructors to enhance and strengthen their pedagogies in order to improve learning outcomes and knowledge retention for students, such as through assessment design and lesson planning.[105] As faculty aim to cater to diverse learning styles, AI can be a unique tool to shape instructional styles and delivery among lectures and assignments.[106] As such, the province should provide institutions with funding for professional development programs focused on AI literacy, including its integration into course creation and ethical use, to empower instructors and address existing knowledge gaps. Support staff at institutions in Ontario agree that a training program should be extended to faculty that would give them various techniques and strategies to use AI effectively and offer guidance to students on their use of AI-based programs.[107]

INFRASTRUCTURE

CLASSROOM TECHNOLOGY AND DIGITAL INFRASTRUCTURE

Principle: Students' learning needs should be met and prioritized within classrooms through the use of technology and educational aids.

Principle: All students should have access to supports relevant to their program to bolster their success both on campus and through suitable online learning platforms.

Principle: Students should be provided with the same level of high-quality teaching and learning on online learning platforms as they would in-person.

Principle: Post-secondary institutions should be equipped with the most up-to-date and relevant technology that research as well as teaching and learning practices.

Concern: Not all classrooms in post-secondary institutions are equipped with the necessary digital infrastructure and accessible technology to support the diverse needs and/or disabilities of students

Concern: As a result of the deferred maintenance backlog in Ontario's post-secondary sector, institutions lack the capital funding to prioritize technological integration.

Concern: Post-secondary institutions have not been able to support instructors and students with the technology and in-person support needed to facilitate hybrid learning options.

Concern: Post-secondary institutions are not incentivized to create or expand curriculum that integrates technology-based learning, digital resources, and technology labs, leading to a diminished quality of education compared to fully in-person formats.

Recommendation: The provincial government should increase funding to post-secondary institutions to improve classroom technology to align with recommendations from the Postsecondary Education Standards Development Committee AODA.

Recommendation: MCURES should establish a dedicated infrastructure grant for upgrading AV

[105] Dr. George Veletsianos, "Generative Artificial Intelligence in Canadian Post-Secondary Education: AI Policies, Possibilities, Realities, and Futures," *Canadian Digital Learning Research Association,* 2023, https://www.d2l.com/resources/assets/cdlra-2023-ai-report/
[106] Ryan Tishcoff, Elizabeth Agoe, Miha Isik, and Alexandra MacFarlane, *Using Generative AI to Make Learning More Accessible.*
[107] Ibid.

equipment and hybrid tech in aging classrooms, and prioritize institutions with pre-2000 buildings, which aligns with OUSA's 2021 Infrastructure Report and AODA Postsecondary Education Standards.

Recommendation: The provincial government should provide envelope funding to post-secondary institutions to cover the additional costs associated with offering accessible technological upgrades, platforms/software, and support staff personnel.

Recommendation: The provincial government should provide development grants to post-secondary institutions seeking to upgrade their technological infrastructure within technology and research labs.

Students' learning needs should be met and prioritized within classrooms through the use of technology and educational aids. Assistive technologies such as screen readers or optical Character Recognition software facilitate equitable learning opportunities for students of all abilities.[108] However, not all classrooms in post-secondary institutions are equipped with the necessary digital infrastructure and accessible technology to support the diverse needs and/or disabilities of students. Institutions may lack the licenses for such software on institutional devices or for students to access on their own. This increases the barriers to accessibility many of these students encounter throughout their degrees. Many institutions also lack the means to execute much needed upgrades. As a result of the deferred maintenance backlog in Ontario's post-secondary sector, institutions lack the capital funding to prioritize technological integration. Currently, Ontario universities have a deferred maintenance or capital renewal backlog of over $7.7 billion, with limited funding injections towards deferred maintenance, it is difficult for institutions with less capital to execute these necessary upgrades.[109] To combat the inaccessibility of post-secondary classrooms, OUSA recommends that the provincial government increase funding to post-secondary institutions to improve classroom technology to align with recommendations from the Postsecondary Education Standards Development Committee AODA. Additionally, to assist with deferred maintenance backlogs, MCURES should establish a dedicated infrastructure grant for upgrading AV equipment and hybrid tech in aging classrooms, and prioritize institutions with pre-2000 buildings, which aligns with OUSA's 2021 Infrastructure Report and AODA Postsecondary Education Standards.

All students should have access to supports relevant to their program to bolster their success both on campus and through suitable online learning platforms. Unfortunately, Post-secondary institutions are not incentivized to create or expand curriculum that integrates technology-based learning, digital resources, and technology labs, leading to a diminished quality of education compared to fully in-person formats The labs from which students learn and the technology which they use to refine their skills and abilities are foundational to the calibre of education they will receive, and the direct translation of this education to their capacity within the workforce.[110] In order for students to thrive in the workforce that has evolving technological needs it is imperative that post-secondary institutions eliminate barriers to institutional innovation and develop upskilling opportunities.[111] In order to appropriately prepare students, The provincial government should provide development grants to post-secondary institutions seeking to upgrade their technological infrastructure within technology and research labs.

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[108] Learning Disabilities Association of Ontario, "Assistive Technology," *Learning Disabilities Association of Ontario* , n.d., https://www.ldao.ca/introduction-to-ldsadhd/what-helps/assistive-technology

[109] Council of Ontario Universities, "Ontario Universities' Infrastructure Maintenance and Capital Renewal," *Council of Ontario Universities,* January 2025, https://ontariosuniversities.ca/wp-content/uploads/2025/01/COU-Infrastructure-Fact-Sheet.pdf

[110] Nicole Johnson et al., "2024 Pan-Canadian Report on Digital Learning,"

[111] RBC. 2025. "Capitalizing on a highly educated workforce**:** How postsecondary education can help fix our productivity crisis" https://thoughtleadership.rbc.com/capitalizing-on-a-highly-educated-workforce-how-postsecondary-education-can-help-fix-our-productivity-crisis/

This extends to hybrid learning spaces, as post-secondary institutions have not been able to support instructors and students with the technology and in-person support needed to facilitate hybrid learning options. Post-secondary institutions should be equipped with the most up-to-date and relevant technology that research as well as teaching and learning practices. When surveyed by the CDLRA about the teaching and learning challenges faced by faculty in 2024, 64% reported faculty digital literacy as a challenge and 57% reported effective instructional practices for teaching with technology.[112] Evidently, a large proportion of faculty still struggle with technological integration. Without being appropriately equipped, faculty and instructors cannot provide students with relevant education that would ready them for the workforce. The right supports will enable faculty to access the latest technology along with the appropriate support to ensure they are deploying it effectively. To accomplish this goal OUSA recommends that the provincial government should provide envelope funding to post-secondary institutions to cover the additional costs associated with offering accessible technological upgrades, platforms/software, and support staff personnel.

[112] Johnson, Nicole. 2024. “Pan-Canadian Report on Digital Learning” https://cdlra-acrfl.ca/wp-content/uploads/2024/12/2024-Pan-Canadian-Report_EN.pdf

POLICY STATEMENT

Whereas: All students should have barrier-free access to the content provided within course components.

Whereas: All students should be able to access and meaningfully engage with course content regardless of ability.

Whereas: Students should have timely access to reliable captions and/or transcripts for their classes.

Whereas: Reliable internet access is an integral part of success in modern learning.

Whereas: Every student should have access to reliable internet connectivity at a reasonable cost which allows them to succeed in an online environment.

Whereas: Every student should have access to reliable technology and equipment to support learning initiatives specific to their program.

Whereas: Institutions should provide students access to the technology required to succeed in their programs.

Whereas: The provincial government and post-secondary institutions should collaborate to minimize the expenses related to technological upgrades, software, and accessibility supports, ensuring that post-secondary institutions remain the primary cost-bearers.

Whereas: It is integral that the provincial government and post-secondary institutions collaborate to minimize expenses related to technological upgrades, software, and accessibility supports.

Whereas: The provincial government and post-secondary institutions should continue to invest in technological supports and infrastructure to make education more affordable for students.

Whereas: Legislation surrounding the collection of data within post-secondary education should be rooted in evidence and used to improve the student experience, accessibility, and equity within the sector.

Whereas: It is integral that prospective students have access to relevant information such as, learning outcomes, enrolment data, institutional performance metrics to make informed decisions when choosing a post-secondary institution.

Whereas: Open University Data should be used to drive innovations to improve in person and online university experience, thereby contributing to a more transparent and accessible higher education

Whereas: Students should have access to lecture material for the duration of the course in a manner that does not compromise instructor ownership of material

Whereas: Academic integrity should be upheld in both online and in-person settings.

Whereas: Students' privacy and dignity should be prioritized through the use of minimally invasive methods of academic dishonesty prevention.

Whereas: A student should not be unjustly suspected of cheating as a result of a proctoring software's inability to accurately interpret their race, gender, religion, medical condition, disability, etc.

Whereas: Tools used for tech-enabled learning, should be high-quality, and must be accessible to a wide range of users without posing additional financial barriers for students.

Whereas: Institutional, instructor, and student needs should guide decisions around which digital tools/resources and AI- based platforms are used in the classroom.

Whereas: Digital tools including AI technologies developed by external organizations can offer genuine value to students, instructors, and their institutions, facilitating innovation in the post-secondary sector, and thus should not be barred outright.

Whereas: Post-secondary institutions should be at the forefront of research and development of new pedagogical approaches and tools.

Whereas: Students should be able to access evidence-based information on the impacts of emerging learning-focused technologies.

Whereas: Post-secondary education should be fully accessible regardless of the course or program delivery mode.

Whereas: All students should expect support in achieving the same learning outcomes in an online course as they would in a traditionally-delivered or hybrid course.

Whereas: The unique pedagogy of online courses should be considered in their design, development, and delivery.

Whereas: Pedagogical innovation is critical to maintaining the quality of post-secondary education.

Whereas: Students should achieve the same learning outcomes in an online course as they would in a traditionally-delivered or hybrid course.

Whereas: The unique pedagogical challenges when transitioning from in-person to online courses should be considered in the design, development, and delivery of online courses wherever possible.

Whereas: Technological support for instructors necessary for maintaining the quality of education, should be provided in circumstances of emergency transitions to remote learning.

Whereas: Post-secondary institutions should have contingency plans s for emergency transitions to online learning.

Whereas: Students affected by emergency transitions to online learning should have the opportunity to build the skills that the digital format did not allow them to practice upon their return to in-person education.

Whereas: Soft skills gained by micro-credentials should be easily identifiable for prospective students.

Whereas: Micro-credentials should be developed by institutions and employers as a viable way for current students to develop and articulate their soft and hard skills

Whereas: Micro-credentials offered by post-secondary institutions should be universally accessible and meet established quality standards.

Whereas: All students should have equitable opportunity to succeed and prosper during their education.

Whereas: Students should have access to high-quality course materials which are required or recommended for their courses regardless of their financial situation.

Whereas: As legitimate and affordable alternatives to expensive textbooks and course materials, awareness of OERs should be promoted by the provincial government and post-secondary institutions.

Whereas: All educational resources, regardless of format, should be high quality.

Whereas: The post-secondary sector should continue to adopt and promote the development of high quality OERS.

Whereas: OERs should be high quality resources equivalent to, or better than, traditional educational resources used at post-secondary institutions.

Whereas: Data collection surrounding the use of OERs improves its quality, integration, and user satisfaction, and so it is imperative for OERs that data collection is an active and ongoing process.

Whereas: The responsibility of promoting and facilitating broader uptake and development of OERs across Ontario post-secondary institutions is that of both individual institutions and the provincial government.

Whereas: Faculty should feel supported and empowered by their institution to adopt, adapt, and/or create OERs.

Whereas: Increasing the adoption of OERs in Ontario's postsecondary education system should be balanced with an instructor's right to select the educational resources they feel best aligns with their course.

Whereas: Online learning tools should enhance the accessibility and quality of education when used effectively.

Whereas: Students should be informed of the accessibility features available through online learning tools.

Whereas: Online learning tools should offer flexibility, affordability, and adaptive learning opportunities for all post-secondary students.

Whereas: Open-source Learning Management Systems (LMS), are more cost-effective and adaptable than licensed, proprietary systems.

Whereas: LMS are useful and dynamic educational tools in post-secondary education as they enhance pedagogical quality and experience by creating immersive learning environments when used proficiently

Whereas: Consistent implementation and use of LMS across various education programs and courses within an institution ensures ease of access and use for all students.

Whereas: All instructors and faculty should be proficient in using technology-enabled learning tools to ensure equitable, high-quality education.

Whereas: Post-secondary institutions should have the infrastructure/resources to provide robust and effective training as well as support to faculty and instructors for the use of technology-enabled learning systems, resources, and tools.

Whereas: Institutions should adequately support faculty and staff in enhancing their knowledge on emerging technologies such as AI.

Whereas: Students' learning needs should be met and prioritized within classrooms through the use of technology and educational aids.

Whereas: All students should have access to supports relevant to their program to bolster their success both on campus and through suitable online learning platforms.

Whereas: Students should be provided with the same level of high-quality teaching and learning on online learning platforms as they would in-person.

Whereas: Post-secondary institutions should be equipped with the most up-to-date and relevant technology that research as well as teaching and learning practices.

Be it resolved that: The provincial government should provide post-secondary institutions with envelope funding to hire or train staff in accessible pedagogies to provide more accessible course delivery technology.

Be it further resolved that (BIFRT): The provincial government should provide institutions with envelope funding for the purpose of acquiring or making more widely available accessible technology.

BIFRT: MCURES should mandate training on accessibility requirements in the online classroom environment for faculty and supporting employees to ensure each student has equitable access to learning materials.

BIFRT: MCURES should enact regulation which requires institutions to ensure that classroom documents and third-party resources employed in course delivery meet the AODA standards for web content.

BIFRT: The Government of Ontario should implement recommendation 68 in the Development of Proposed Post-Secondary Education Report “each postsecondary institution must develop and make publicly available a plan to seamlessly include accessibility in the digital learning and technology used throughout the academic journey of all students with disabilities.”

BIFRT: The Government of Ontario should implement recommendation 69 in the Development of Proposed Post-Secondary Education Report “the Digital Learning and Technology plan must be created in consultation with a diverse body of stakeholders that includes students with disabilities.”

BIFRT: The provincial government should expand the OSAP technology grant to incorporate the cost of internet coverage for the duration of the academic year.

BIFRT: The provincial government should continue the funding and expansion of independent Contact North Online Learning Centres supporting greater online and remote access for students in northern and rural areas.

BIFRT: MCURES should provide grant funding to post-secondary financial aid offices earmarked to support students who lack the resources to purchase appropriate technology.

BIFRT: The provincial government should implement provisions within OSAP funding calculations that take into account the unique technological requirements of specific programs.

BIFRT: The provincial government should amend the computer allowance within OSAP to provide students with a grant of up to $1500 to use during their degree.

BIFRT: MCURES should create best practices for implementation of policies in accordance with Bill 166’s provision for transparency with associated post-secondary costs.

BIFRT: The provincial government should continue to support post-secondary institutions through the Virtual Learning Strategy for Post-Secondary Education, providing additional funding toward needs based institutional grants for the costs of technology associated with a program's content.

BIFRT: The provincial government should implement research and development grants for post-secondary institutions t0 develop and integrate innovative hardware, software, or OERs; enabling higher quality education and reduced course fees for students.

BIFRT: MCURES should narrow the Tuition Fee Framework and Ancillary Fees Guidelines to establish limitations on the costs affiliated with utilizing third party technologies.

BIFRT: The provincial government should task the Higher Education Quality Control of Ontario with researching the rising cost of technology associated with post-secondary education as well as the impacts and successes of government loans and research and development grants (such as the Virtual Learning Strategy grant) effectiveness in reducing financial barriers.

BIFRT: The provincial government should enhance its data collection procedures to track and evaluate the impact of online learning on student outcomes, such as graduation rates, skills acquisition, and postgraduate employment.

BIFRT: MCURES mandate that all post-secondary institutions annually disclose online course completion rates, student satisfaction scores, and accessibility metrics via HEQCO’s Open Data Inventory to improve public access and accountability.

BIFRT: The provincial government should task HEQCO to expand their Open University database to generate and maintain consistent measures of data across post-secondary institutions.

BIFRT: The provincial government should work in collaboration with the COU to develop a publicly available uniform data collection system for learning outcomes and student experience.

BIFRT: MCURES should establish clear guidelines for data collection to ensure the integrity of publicly available data.

BIFRT: MCURES should create a taskforce that will establish a standardized data collection framework to be employed across all post-secondary institutions provincially.

BIFRT: MCURES should commission the COU's Quality Assurance Branch with surveying institutions to produce a comprehensive framework for an intellectual property amendment to the MTCU Act.

BIFRT: The provincial government should commission HEQCO in consultation with faculty and instructors to create a best practice guide to avoiding/mitigating concerns related to intellectual property theft.

BIFRT: MCURES in consultation with marginalized students, student governments, and experts should create provincial standards for proctor software, ensuring that it meets requirements for equitable assessment, privacy, accessibility, and data security.

BIFRT: MCURES should mandate that universities commit to using the most minimally invasive software practices for ensuring academic integrity during assessments, wherever possible.

BIFRT: MCURES should mandate policies pertaining to permitted uses of accommodation aids during online-proctored exams for students with disabilities.

BIFRT: MCURES should mandate that institutions ensure that online proctoring standards mirror in person proctoring exam regulations for typical student behaviour and environmental interferences.

BIFRT: MCURES should require institutions to educate instructors of the risks and possible harms of proctoring software, and alternative assessment methods that do not require proctoring software.

BIFRT: MCURES should mandate that all post-secondary institutions establish clear and accessible policies regarding alternative assessment methods for students who cannot use proctoring software.

BIFRT: MCURES in consultation with organizations such as eCampusOntario, should develop a task force of students, faculty experts and (innovators) to create provincial guidelines for ethical integration of generative AI in post-secondary education.

BIFRT: MCURES should mandate that each post-secondary institution must develop and make publish a strategy to improve the accessibility of digital learning tools and technology to meet AODA standard to be updated on a five year cycle basis.

BIFRT: The provincial government should contribute more funding to the virtual learning strategy to support institutions in implementing and maintain accessible digital learning environments for students with disabilities

BIFRT: The provincial government should provide grant funding for institutions developing and expanding inter-institutional access to digital learning tools and platforms.

BIFRT: MCURES should mandate that any AI-powered educational tools used in post-secondary institutions must be independently audited by a panel including student representatives to assess their fairness, transparency, data security, IP protection, and alignment with educational equity principles.

BIFRT: The provincial government should expand grant funding for public institutions design and development of educational tools.

BIFRT: The provincial government should provide envelope funding to institutions to support institutional strategies that enhance students' ability to engage with online courses, such as technology loan programs.

BIFRT: The Ontario Universities Council on Quality Assurance (OUCQA) should amend the Protocol for Major Modifications to require assessment of existing criteria for changing a course from in-person to online.

BIFRT: The provincial government should task HEQCO with the establishment and continual review of best-practice recommendations for the design, development, and delivery of online courses.

BIFRT: The provincial government should provide envelope funding to post-secondary institutions to financially assist with innovation and experimentation for online learning in post-secondary environments.

BIFRT: The provincial government should allocate grant funding for institutional bodies supporting the design, development and delivery of online courses.

BIFRT: MCURES in consultation with institutions should alter Strategic Mandate Agreements, including performance-based funding frameworks, to include specified metrics for assessing pedagogical innovation within online and technology integrated learning.

BIFRT: The provincial government should create reserve grant funding for institutions to facilitate an effective shift to remote course delivery in the case of future emergency transitions to online learning.

BIFRT: The provincial government should task HEQCO with creating a proactive best practice list for institutions to reference in times of emergency transitions to online learning.

BIFRT: MCURES should mandate that institutions create and regularly review proactive planning that addresses protocol for emergency transitions to online learning.

potential new rec- mandating proactive emergency plans.

BIFRT: MCURES should commission eCampusOntarioto undertake a continuous data collection process to measure the effectiveness of micro-credentials in improving employment outcomes.

BIFRT: MCURES should work with institutions to improve the promotion of the eCampusOntarioMicro-credential library and student awareness of micro credentials and their effectiveness.

BIFRT: The provincial government should enforce an accreditation and quality control system for micro-credentials using the eCampusOntario and PEQAB frameworks to ensure consistency, transparency, and credibility.

BIFRT: The provincial government should incentivize institutions through OER adaptation and development grants that encourage the creation of OERs, and replace expensive course materials with free and low-cost alternatives.

BIFRT: The provincial government should develop predictable funding for eCampusOntario to expand its OER library, prioritizing high-enrolment courses.

BIFRT: The provincial government, in conjunction with eCampusOntario, should hold institutional forums with administrators and instructors across faculties to raise awareness of OERs, highlight their benefits, and answer outstanding questions.

BIFRT: The provincial government should mandate that institutions report the number of courses using OERs and their enrolment to eCampusOntario, on an annual basis, and offer monetary incentives when institutions reach a certain threshold.

BIFRT: The provincial government should expand envelope funding to post-secondary institutions to help offset the high costs associated with the initial development of OERs.

BIFRT: The provincial government should develop quality assurance guidelines for OERs to aid in consistent standards for the development of resources.

BIFRT: The provincial government should work with faculty stakeholders including but not limited to the COU and Ontario Confederation of University Faculty Associations, to gather and distribute qualitative and quantitative data on OER quality to institutions.

BIFRT: The provincial government should increase funding to the eCampusOntario Open Library platform so as to improve upon its OER peer-review and adoption process.

BIFRT: The provincial government should provide funding for institutions that report data regarding both students' and faculty members' experiences with OERs to eCampusOntario in a standardized and measurable format in order to improve upon OER quality.

BIFRT: The provincial government should provide eCampusOntario with additional funding for the continued collection, analysis, and publication of institutional user satisfaction data as well as with distributing the findings to post-secondary institutions.

BIFRT: The provincial government should work with the Ontario Confederation of University Faculty Association (OCUFA) and COU to develop meaningful incentives geared towards faculty for OER development.

BIFRT: The provincial government should work with the Council of Ontario Universities to develop a best practice system for incentivising [and recognizing] OER development.

BIFRT: The creation and promotion of OERs should be included in Ontario's Strategic Mandate Agreements as a metric for effective pedagogy and faculty innovation, linking performance-based funding to increasing financial access to education.

BIFRT: The provincial government should provide post-secondary institutions with funding for OER adoption, adaptation and creation grants awarded to faculty who integrate or develop OERs, thereby facilitating OER uptake.

BIFRT: The provincial government should increase funding to eCampusOntario's Open library to improve upon its OER review process, digital resource editing capacity, and its diversity of texts.

BIFRT: The Ontario Universities Council on Quality Assurance (OUCQA), in partnership with eCampusOntario and Contact North, should develop best practices for the development, implementation, and quality appraisal of online learning tools with a focus on accessibility, effectiveness, and consistency within and across institutions.

BIFRT: The Ontario Universities Council on Quality Assurance (OUCQA) should integrate best practices and Universal Design Learning (UDL) standards concerning online learning tools into the Quality Assurance Framework used for Institutional Quality Assurance Processes.

BIFRT: MCURES should fund and work with eCampusOntario and Contact North to publish accessible and effective digital literacy education programs for instructors and students in Ontario post-secondary institutions.

BIFRT: MCURES should create and publish best practices, based on consultations with students and post-secondary institutions, on how post-secondary institutions should identify in advance and clearly communicate to students the accessibility features of the online learning tools needed to meet provincial AODA requirements.

BIFRT: MCURES, in collaboration with eCampusOntario and Contact North, should encourage and provide technical support for the use of open-source LMS in post-secondary education.

BIFRT: MCURES, in partnership with eCampusOntario, Contact North, and the Ontario Universities Council on Quality Assurance (OUCQA), should enhance institutional capacity and knowledge on effective LMS use while developing quality standards and best practices for their selection and implementation.

BIFRT: The Ontario Universities Council on Quality Assurance (OUCQA) should integrate quality standards and best practices around LMS into the Quality Assurance Framework to ensure consistent application across Ontario post-secondary institutions.

BIFRT: The provincial government should provide special purpose grant funding to post-secondary institutions' teaching and learning departments to enhance the quality, effectiveness, and use of resources, tools, coaching, and training around technology-enabled learning offered to faculty, instructors, and staff.

BIFRT: MCURES should provide eCampusOntario and Contact North with funding to work with post-secondary institutions and stakeholders to launch an online and blended learning program for faculty and instructors.

BIFRT: MCURES should, after consultation with the OCUFA and COU, provide grants to post-secondary institutions for successful and widespread completion of the aforementioned dedicated and comprehensive certificate program by faculty and instructors.

BIFRT: The provincial government should provide institutions with funding for professional development programs focused on AI literacy, including its integration into course creation and ethical use, to empower instructors and address existing knowledge gaps.

BIFRT: The provincial government should increase funding to post-secondary institutions to improve classroom technology to align with recommendations from the Postsecondary Education Standards Development Committee AODA.

BIFRT: MCURES should establish a dedicated infrastructure grant for upgrading AV equipment and hybrid tech in aging classrooms, and prioritize institutions with pre-2000 buildings, which aligns with OUSA's 2021 Infrastructure Report and AODA Postsecondary Education Standards.

BIFRT: The provincial government should provide envelope funding to post-secondary institutions to cover the additional costs associated with offering accessible technological upgrades, platforms/software, and support staff personnel.

BIFRT: The provincial government should provide development grants to post-secondary institutions seeking to upgrade their technological infrastructure within technology and research labs.