



STRATEGIES TO ADDRESS THE DIGITAL DIVIDE

August 2020

In the following report, Hanover Research presents the results of an analysis of technology and support strategies to address the digital divide, specifically highlighting strategies to assist non-traditional, Indigenous, and disabled students.



TABLE OF CONTENTS

3 / Executive Summary

4 / Overview of Trends

5 / Program Analysis

10 / Online Support Strategies

RECOMMENDATIONS

Based on an analysis of trends in addressing the digital divide, Hanover recommends that institution:

ADOPT LOW-TECH ONLINE LEARNING STRATEGIES

In addition to providing laptops and other devices to students, encourage and train faculty to adopt more low-tech online learning strategies. Low-tech strategies, such as using asynchronous course content through email, phone, and mobile data, would be more inclusive and could be more sustainable over the long-term.

BUILD A SUPPORT WEBSITE FOR STUDENTS

Similar to the peer tutoring centers that George Brown College and Humber College offer, develop a site that provides students with instructional videos on how to use the different platforms such as Blackboard. Further, this site could be used as a clearinghouse, providing students with contacts with additional community support.

EXPAND ONLINE ACCESSIBILITY PRACTICES TO ALL STUDENTS

Many best practices for supporting online students with disabilities are also effective at creating digital equity. Asynchronous learning, highly accurate video captioning, study skills workshops, micro-unit course content, and multi-channel feedback options will benefit all online students and provide opportunities for greater flexibility and support.

OFFER ONGOING ONLINE ORIENTATION SUPPORTS

Multi-platform online orientation modules may be more effective at engaging in-coming students. Additional orientation workshops, after classes have started, gives students a chance to develop specific questions and understand the online context. Providing one-on-one online appointments can also help students who feel they need more personalized training on online tools.

KEY FINDINGS

- **Lending mobile hotspots, tablets optimized for mobile networks, or preloaded laptops can help address the digital divide.**

Providing laptops to students with preloaded coursework, learning modules, and/or videos can help mitigate both access and technological barriers to online learning.

- **Non-traditional students will benefit from increased flexibility and personalized advising.**

Non-traditional students typically have additional work responsibilities or caregiving. Therefore, these students will likely have highly individual needs. Personal advisors can help assess and provide for student needs.

- **Indigenous students will benefit from increased connection or community supports.**

Offering connection circles, online discussions with Indigenous advisors or Elders, or virtual events can help Indigenous students maintain vital relationships with others who share their culture.

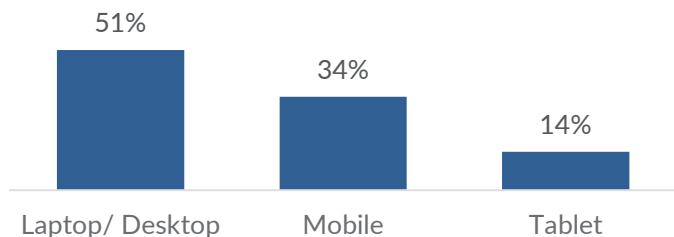
- **Students with disabilities will benefit from optimized technology, multi-channel supports, and study skills training.**

Ensuring that all online course content is available in the correct accessible format will help students transition to online study. In addition, providing a variety of support channels (phone, video, text, email) and study skills workshops or coaching can aid students with learning disabilities to navigate new challenges.

OVERVIEW OF TRENDS

INTERNET USE IN CANADA

How Canadians Access the Internet



Source: [CIRA](#)

Although the quality of internet speed is increasing nationally, rural areas still experience far lower quality than urban areas. However, since February 2020, rural speeds have decreased while urban speeds have increased.



3.7 Mbps

Median **RURAL**
download speeds
(April 2020)

Source: [CIRA](#)



44.09 Mbps

Median **URBAN**
download speeds
(April 2020)

STRATEGIES TO ADDRESS THE DIGITAL DIVIDE

Developing strategies to address the [digital divide](#) in colleges and universities in Canada is becoming increasingly critical, as COVID-19 response strategies highlight current inequities in online tertiary education. Institutions must take a pro-active and highly flexible approach as online learning moves from a choice to a necessity. The digital divide includes three [critical elements](#) that must be addressed: infrastructure, digital skills, and support services.

Infrastructure

Digital Skills

Support
Services



Role of the Institution

Institutions will need to provide focused leadership to address the digital divide and will need to stay in constant contact with students to understand evolving needs and effective support systems. One general way to support online students is to situate the college as a [clearinghouse](#) for all information related to digital access and support. Institutional staff can connect students with community resources for internet access (such as local free hotspots), mobile data connection, or even financial assistance. An institution may not need to provide every resource for students but should direct students to effective services. For example, [Saskatchewan Polytechnic](#) organized descriptions and links to all online student support services on its COVID-19 information page.

In addition, institutions should assess their own resources and ability to deliver online services to determine whether to partner with [third-party vendors](#) to provide, for example, tutoring, online orientations, or wellness coaching. These services could supplement current on-campus options and allow for a quick response to student needs.

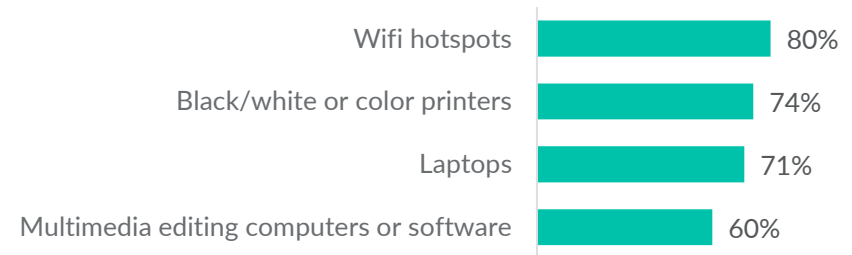
INFRASTRUCTURE

Many institutions are providing laptops, tablets, or other devices to students to keep them connected for online learning. However, a [2018 study](#) found that the *quality* of digital infrastructure is often a more significant hurdle than *access* to devices themselves. The study surveyed 748 US undergraduates and found that while almost all respondents had laptops and smartphones, around 20 percent of students have “problems maintaining access to effective technology.” Some common problems included:

- Laptops or tablets that did not work consistently enough to type papers
- Devices that will not hold a charge
- Off-campus living arrangements without reliable internet access
- Limited cell phone data

Low-quality device access was a more significant problem for low-income students and students of color. They could not replace faulty devices as easily or quickly and were less likely than their affluent counterparts to ask their instructors for help or extended deadlines. In addition, students with unreliable laptops had “lower grade-point averages, even after accounting for demographic factors.”

A 2019 study of US community college students found that 42 percent of students thought access to [loaned technology](#) (for academic and personal use) would be “extremely valuable.” The majority of students preferred to borrow technology for at least a semester at a time and the service was valuable both to on-campus and online students. The service would be particularly valuable to students of color; half of black, African-American, Hispanic and/or Latinx students rated the service extremely valuable, while less than one-third of white students rated it the same. The most popular technologies for loan included the following:



SPOTLIGHT: PROVIDING DEVICES

[Collège de Rosemont](#) in Montreal partnered with a **local computer supply store** to refurbish and provide computers to students. The company had previously offered computer repair workshops and currently provides technical support for all the equipment given to students.

Northern Lakes College (NLC) uses a [Supported Distance Learning](#) model to deliver online education to students. The model provides a live online classroom environment with synchronous lectures and discussions. Each class is recorded so students can also “attend” on their own time or re-watch lessons. The platform also provides access to tutoring, counselling, funding, and library services.

However, a large number of communities in northern Alberta lack [access](#) to high-speed internet. Typically, students from these communities access their online courses at an NLC campus. Once the physical campuses were shut down, NLC provided “affected students with laptops **preloaded with required learning materials.**”

STUDENT SUPPORTS

NON-TRADITIONAL STUDENTS

[Non-traditional students](#) studying online typically need support networks that are flexible, responsive, and personalized. Many non-traditional students have additional responsibilities, such as caregiving or full-time employment.



Flexibility

As responsibilities change due to COVID-19, non-traditional students may have widely differing educational needs. Some students may be even more focused on completing a degree program to combat work uncertainties, while others may need to reduce their courses to accommodate caregiving. Consequently, non-traditional students will likely benefit from highly flexible online learning strategies and multiple access points for course content.



Personalization

Non-traditional students typically have very unique personal situations and benefit from close contact with an advisor or coach who can help students navigate evolving schedules or circumstances.



SPOTLIGHT: PEER TUTORING

When the institution moved online in March, [George Brown College](#) transitioned its **Tutoring and Learning Centre** (TLC) from partially to fully online. The team trained 50 peer tutors to use digital tutoring platforms and posted videos to show students how to book and access online tutoring. The TLC also holds an online webchat to answer student questions each day. The transition was a success, with 200 students receiving support for 90 different courses across 545 tutoring sessions in the first two weeks.

The School of Computer Technology at George Brown College also transitioned its own specialized tutoring support for computer science, called MobiHelp, to a fully online format. Students in their third through sixth semester offer one-on-one online tutoring assistance to first-year students. Peer tutors also “develop and post challenge questions that allow users to practice applying the skills they’re learning in class.” Over a three-week period, students visited MobiHelp 382 times and received 488 hours of tutoring.

Humber College has also moved peer tutoring online for the summer 2020 term. The [Peer Assisted Study Sessions](#) (PASS) program provides tutoring support that targets high-risk courses instead of high-risk students. Faculty can ask the PASS program to facilitate tutoring for any high-risk course and students have the opportunity to attend a group study session for two hours each week. Benefits of PASS include [quoted verbatim]:

- Non-remedial approach to learning for historically difficult courses which have been challenging for ALL students
- Utilizes a peer-led group study approach to help students succeed
- Facilitated by a PASS Leader, who is a current student who had already successfully completed the course

PROGRAM ANALYSIS

ONLINE ORIENTATION

Orientation or onboarding services for all online students (both new and returning) will help create a high-quality student experience. [Onboarding](#) is a comprehensive effort that “begins with a welcoming and supportive enrolment process that extends through orientation and into the first few courses.”

Commonly, online orientations consist of self-paced online modules that introduce students to the tools and tasks they will need to participate in and complete online courses. Typically, orientation modules are [optional](#), although data shows that students who complete online orientations have higher rates of course completion and higher GPAs. Some successful practices for online orientations include:



Excelsior College found that far more students attended synchronous orientation webinars on the third day of class during the lunch hour than on the first day between 7-8 pm EST. This **timing** gave students a chance to identify problem points and learn what they needed to know for their classes.



Western Governors University and Liberty University also offer online orientation modules on mindfulness and meditation and how to “**think critically** about how they’ll approach their online educational experience.”



Southern New Hampshire University **automatically enrolls** students in online orientation once they complete registration, although students can opt-out.

Carleton University

Carleton offers an optional [Online Learning Orientation](#) to help students understand online learning and the cuLearn platform. The orientation takes approximately one hour and includes six short modules, including self-check questions and a feedback survey. The modules cover some of the following:

- Benefits, challenges, and tips for online learning
- How to effectively manage your time
- How to optimize your learning space
- How to interact and engage online
- Where to seek additional support

Algonquin College

Algonquin provides both asynchronous and synchronous resources as part of its [Online Learning Orientation](#). New students first watch eight orientation videos to familiarize themselves with tools and resources. The topics include:

1. ACSIS and Network Account Info
2. Brightspace
3. OntarioLearn
4. Success in Online Environments
5. Course Facilitators
6. Textbooks
7. Student Resources
8. Getting Started on Day #1

Once students complete the videos, they can register for a live Q&A session with an AC Online Student Success Specialist. The sessions are one hour in length and allow students to ask additional questions. Students who prefer additional assistance may schedule a 30-minute personalized individual appointment via phone or Zoom with a Student Success Specialist.

LOW-TECH STRATEGIES

To accommodate students (or faculty) without access to technology or comprehensive digital skills, some institutions are exploring or have adopted low-technology strategies to deliver course content and assessment. Low-tech options also encourage equity across all student demographics.

One [professor](#) from the University of Ottawa warns that offering two different types of assignments (one for digitally connected students and one for less connected students) perpetuates the inequalities of the digital divide within classrooms. Less connected students may miss out on peer learning through online discussion groups or real-time question and answer sessions related to synchronous lectures.

Instead, institutions can implement low-tech instructional and support strategies that are more accessible *and* inclusive, such as mobile technology, email, and telephone.



TAP INTO CELL SIGNALS

Typically, [cellular service](#) is more widespread than high-bandwidth internet. Institutions can assist students by loaning mobile hotspots or distributing tablets that run directly off cell signals.



CREATE DEVICE-AGNOSTIC ASSIGNMENTS

In spring 2020, the [College Board](#) expanded access to traditionally in-person AP exams to allow students to complete the exam at home on a computer, tablet, or mobile phone. Students could also write the exam responses by hand and then take a photo of the paper to submit. Other [professors](#) recommend creating assignments and projects that are not based on online resources; instead, focusing on short essays, analysis of texts, or [case study](#) responses.



OPTIMIZE FOR MOBILE LEARNING

Professors can design course content for use on mobile devices and institutions can make mobile learning more accessible by loaning [external keyboards](#) to students for use with smartphones or tablets. Some optimizations could include:

- Using text messaging for reminders, office hours, assignments, or questions
- Providing cloud-based storage for students with devices with less space
- Designing course content for viewing on small screens (such as publishing on mobile-friendly webpages linked to the online syllabus)

PROGRAM ANALYSIS

LOW-TECH INSTRUCTIONAL ALTERNATIVES

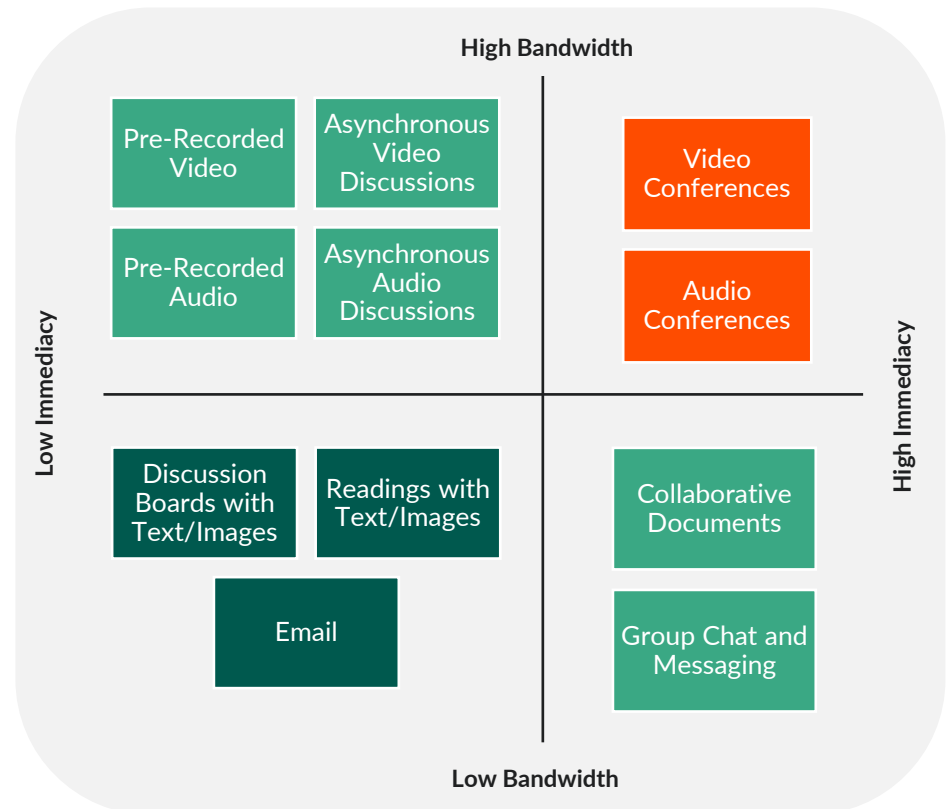
Instructors can make adjustments to online learning resources, class assignments, and online platforms to make course content more accessible to students with low bandwidth, minimal device access, or inconsistent access to internet connection. The [University of North Carolina – Charlotte](#) published a detailed list of strategies for asynchronous learning that are designed to accommodate all students. While many students may struggle to find high-speed internet access, many have access to cell data and mobile networks.

The following suggestions offer greater access.

LOW BANDWIDTH ALTERNATIVES

- Use low-resolution graphics or videos
- Use Google Meetup and Google Hangouts instead of high-bandwidth Zoom for peer tutoring
- Allow students to call into Webex or Google meetings with their phones
- Utilize text messaging for reminders
- Use Google shared folders and docs
- Create and record lectures in PowerPoint and save as mp4
- Create short low-resolution videos that can be uploaded and downloaded quickly
- Save videos to Youtube (which also auto-captions videos for a “good enough” option)

Daniel Stanford, the Director of Faculty Development and Technology at DePaul University, identifies two intersecting factors that must be considered when approaching [accessible online education](#): **bandwidth** and **immediacy**. While immediacy (asking questions; participating in discussions) is natural in a physical classroom setting, requiring immediacy in an online classroom can exclude students who do not have high-bandwidth technologies to accommodate video streaming. Stanford recommends shifting instructional reliance on immediacy to increase accessibility. The figure below displays technologies appropriate for each intersection of student and instructor needs.



ONLINE SUPPORT STRATEGIES

SUPPORTS FOR INDIGENOUS STUDENTS

To support Indigenous students studying fully online, many institutions focus on providing virtual opportunities for building community and maintaining connections. The [Indigenous Student Supports](#) team at Red Rock College seeks to “encourage students to keep doing the things that connect them to their culture and spirituality, as much as keeping up with their academics.” Institutions are moving support services online as well as developing new services and connections to support online students.

CONNECTION STRATEGIES

In response to Indigenous student interest, the Alberta Indigenous Mentorship in Health Innovation Network (AIM-HI) at the University of Calgary Cumming School of Medicine started a series of online [Connection Circles](#). Students mentioned that they “felt a gap between themselves and their support network” so administrators organized a weekly online gathering of 20 people for two to three hours. Each group is supported by an Elder and offers a space for prayer, sharing stories, guidance, and listening. Once students are able to return to the physical campus, the Connection Circles plan to move to the Indigenous Hub office.

Vancouver Island University held an online event to recognize Indigenous graduates. The Office of Aboriginal Education and Engagement moved the [Semélshun Aboriginal Graduation and Recognition Ceremony](#) online, where graduates and their families shared encouragements and watched videos of administrators, an Elder drumming ceremony, and a surprise keynote speech. The response to the event was positive, particularly as it allowed family members from far away to attend.

SUPPORT SERVICES

In spring 2020, Red Rock College’s [Indigenous Student Supports](#) team traveled to take support services to students. They delivered computers, emergency food hampers, and traditional medicine packages including safe and cedar. The elder in residence also shared teachings virtually through Facebook videos. The office continues to offer counselling, academic coaching and tutoring, and navigation coaching [virtually](#), primarily by phone.

[Sheridan College](#) recognized that “marginalized and equity-seeking groups,” including Indigenous students, may be “disproportionately impacted” by COVID-19 and the rapid move to online learning. The Inclusive Communities team began a webinar series addressing the needs of different demographics. Indigenous student engagement leaders recommend the following online student supports:

- Proactively reach out to students throughout the semester to inquire whether student needs have changed over time
- Offer “live” connection options and strive for personal one-to-one connections, even online
- Connect students with members of the Indigenous Care team
- Direct students, if needed, to the mental health counselling and crisis intervention line for immediate help

ONLINE SUPPORT STRATEGIES



ONLINE ACCESSIBILITY

Students with physical or learning disabilities need both “accommodations” and “[access needs](#).” However, these strategies are not interchangeable.

Accommodations: “attempt to enhance accessibility through an environmental or communicative change, such as attaching a ramp to a building.”

Access needs: are “necessary to be able to engage with the world, such as requiring content in a tactile format because of blindness.”

Many online accommodations provided for disabled students can be seen as optional, but are actually necessary access needs. Framing these strategies as access needs helps embed essential services into online course delivery.

Notably, many of the access strategies originally designed for students with disabilities create [greater accessibility for all students](#). For example, providing fully accurate captioning on all videos not only benefits hard-of-hearing or deaf students, but also students who need additional processing time and students who need to watch the video in a public place or while taking care of sleeping children. Consequently, many access strategies should be adopted as standard practice for online learning.

INSTRUCTIONAL STRATEGIES

- Offer [course content](#) in micro-units or small chunks of essential information (such as 5-10-minute videos)
- Provide **text-based documents** rather than images for students who use keyboard commands
- Provide **text descriptions** of all images for students who use screen readers
- Use **descriptive text** in links for online sources
- **Accurately caption** all video clips (not auto-generated)
- Optimize all websites for accessibility ([W3C](#) Web Accessibility Initiative standards)
- Explore third-party (such as [SensusAccess](#)) to convert course content into multiple alternate media (including audiobooks, ebooks, and digital Braille)
- Be aware of [cognitive overload](#) and provide clear and straightforward instructions for assignments and exams one at a time

SUPPORT STRATEGIES



- Keep lines of [communication](#) open with students to ensure that accommodations are actually meeting student needs. Offering multiple communication platforms (including email contact forms, chat boxes, and phone numbers) helps students access feedback options.



- Proactively reach out to students to learn about [accessibility needs](#) and communicate current available access options, instead of waiting for students to approach. Most disabled students have to serve as their own advocates and may have difficulties expressing their needs.



- Provide [executive function support](#) for students with learning disabilities, including workshops, tutoring, or coaching with short-term memory, self-control and flexible thinking.



HANOVER
RESEARCH

