



Removing Barriers to Online Learning Through a Teaching and Learning Lens

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INTRODUCTION

As the growth of online courses continues to increase for a variety of reasons, it is imperative that we examine and interrogate the ways in which students in online learning environments experience inequities in education. Equity in education examines issues of fairness and access to opportunities. Online course delivery has the potential to break down some barriers that exist in face-to-face classrooms, such as geographic location, transportation issues, architectural and physical impediments, and social contexts that can create inaccessible learning environments (Moorefield-Lang, Copeland and Haynes 2016). In an idealized sense, online courses can eliminate these barriers (Moorefield-Lang, Copeland and Haynes 2016).

In spring 2019 BCcampus put out a request for expressions of interest regarding research on supporting diverse online learners. In its call for proposals, BCcampus stated the following:

It is vital that we know whether there are barriers for marginalized students and/or potential students that impede their success with online environments.

We have received a grant from the William and Flora Hewlett Foundation to further British Columbia's efforts in reaching rural and remote learners as well as potential students (both urban and rural) who have barriers preventing them from being successful in an online learning environment. Specifically, we want to see research on increasing the inclusion of equity-seeking groups who need to learn in an online environment. For example, what barriers need to be addressed with access to materials, digital literacy, quality of instruction and resources, and pedagogy?

In response to this call, we used an evidence-based approach to data collection and analysis to understand the landscape of online learning in post-secondary education. The research is inclusive of the following:

- A review of the contemporary scholarly literature about online learning with a focus on remote and rural learners and equity-seeking groups
- Interviews with B.C. post-secondary institutions to learn about the barriers to online learning and teaching as well as institutional strategies and practices in online learning
- Survey of online learners in B.C. post-secondary institutions to understand their experiences

The goal of this report is to synthesize the data we collected from the literature, institutional interviews, and students to provide thought leadership that identifies evidence-based strategies for designing and delivering online learning that improves outcomes for a diverse spectrum of students.

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OBJECTIVES

The objectives of this research are as follows:

1. Report on scholarly findings regarding barriers to online learning, specifically for rural, remote, and equity-seeking students.
2. Identify B.C. post-secondary education concerns regarding online learning, and categorize evidence-based equity practices with a focus on access to materials, digital literacy, quality of instruction and resources, and pedagogy.
3. Identify B.C. post-secondary students and potential students from rural and remote areas, specifically those of equity-seeking status, regarding their needs for materials, digital literacy, quality of instruction and resources, and pedagogy.
4. Produce a report that provides an overview of the commonalities and distinctions between scholarship, institutional practices, and student participant perspectives to identify strategies to improve online learning, teaching, and educational technologies.

ACKNOWLEDGEMENT

This research took place on unceded territories in B.C., and we, the researchers, are situated on the ancestral territories of the Coast Salish Peoples, the Katzie, s̓c̓awaθenaʔt̓ t̓əm̓əxʷ (Tsawwassen), Kwikwetlem, sə̓lilwətaʔt̓ t̓əm̓əxʷ (Tsleil-Waututh), S'ólh Téméxw (Stó:lō), Qayqayt Kwantlen, Stz'uminus, xʷməθkʷəy̓əm, and Sk̓w̓x̓wú7mesh Úxwumixw (Squamish) nations. We are grateful to be guests on this land and thankful to its traditional stewards. The aims of this research is to contribute to overcoming the barrier to online learning put in place by colonial systems. Our hope is that this work contributes to generative strategies for educators to be more inclusive and decolonizing in their practices.

We would like to thank BCcampus for providing the funding for this important work and for its continued support of provincial initiatives. We would also like to extend a heartfelt thank-you to all the participants, practitioners, and researchers in this field. We appreciate the dedication of the hardworking people in our B.C. post-secondary institutions and thank students who took time out of their busy lives to contribute to the survey.

CONTEXT

This research was conducted from April 2019 to March 2020. Toward the end of March 2020, the landscape of teaching and learning shifted dramatically due to the COVID-19 world pandemic. In response to the COVID-19 crisis, many institutions face the challenge of transitioning face-to-face classrooms to online learning in a very short time frame. This research does not reflect the specific challenges of the COVID-19 crisis and the institutional response in B.C. Rather, the underpinnings of this research are pre-COVID-19, and as such the barriers to online learning are pre-COVID-19. The evidence-based strategies are representative of those used in intentionally designed online learning environments.

ACRONYMS

EDI = Equity, diversity, inclusivity
HTML = Hyper Text Markup Language
MOOCs = Massive Open Online Courses
OER = Open educational resources
PSI = Post-secondary institution
UDL = Universal Design for Learning

DEFINITIONS

| | |
|--|---|
| DIGITAL LITERACY | Digital literacy is the ability to use information and communication technologies to find, evaluate, create, and communicate information. It requires both cognitive and technical skills. |
| EQUITY | Equity addresses difference. It is not about equality, which means everyone is treated the same way. Equity recognizes that some groups have been historically disadvantaged in accessing educational opportunities. In an online learning environment, equitable approaches understand that some groups experience barriers to successful learning, and these approaches seek to create ways for equity-seeking groups to successfully engage (University of British Columbia 2010). |
| DIVERSITY | The concept of diversity encompasses acceptance and respect. Diversity is a reality created by individuals and groups from a broad spectrum of demographic and philosophical differences (Queensborough Community College n.d.). |
| INCLUSION | Braunsteiner and Mariano-Lapidus (2014, 32) posit that inclusion is the “fundamental right of all children and adults to fully participate, and contribute in all aspects of life and culture, without restriction or threat of marginalization.” Inclusion is the continuous process of increasing the presence, participation, and achievement of all learning in educational establishments. |
| PEOPLE WHO EXPERIENCE MARGINALIZATION | Marginalization is the process of pushing a particular group or groups to the edge of society by not allowing them an active voice, identity, or place in it. Through both direct and indirect processes, marginalized groups may be relegated to a secondary position or made to feel less important than those who hold more power or privilege in society (Syracuse University 2018). |
| ACCESSIBILITY | Accessible education is the process of designing courses and related teaching to meet the needs of diverse populations from a variety of backgrounds, abilities, and learning preferences (Accessible Campus). “Accessibility is achieved through using a variety of different design and pedagogical approaches to meet the needs of a greater number of learners. Often, the term <i>accessible</i> is used jointly with <i>affordable</i> or <i>attainable</i> when discussing higher education. Used in this fashion, accessible refers to an individual's ability to enter the world of post-secondary education” (Casarez and Shipley 2016, 2). |
| INTERSECTIONALITY | Intersectionality is a metaphor for the ways that multiple forms of inequality sometimes compound and create obstacles that are not understood through a singular lens of identity or analysis. For example, Aboriginal women 15 years and older are 3.5 times more likely to experience violence than non-Aboriginal women. This statistic is a compound of race and gender (Crenshaw 2018). |

EXECUTIVE SUMMARY

- ✦ The data sources for this research are a literature review of 42 articles, open-ended interviews with 13 B.C. PSIs, and a survey to B.C. post-secondary online learners, resulting in 342 respondents.
- ✦ Student participants noted that their main motivation for taking online courses is to support their needs to work, be caregivers, and achieve the credentials they require.
- ✦ The themes underpinning the data analysis and synthesis of findings are access to materials, digital literacy, quality of instruction and resources, and pedagogy.
- ✦ The interpretations of pedagogy in online learning resulted in a contribution to the scholarship in the field. The three foundational underpinnings for pedagogy in online learning are equity mindedness, cultural affirmation, and social engagement.

High-Level Overview of the Findings

1. **Access to materials:** The influence of socioeconomic status on digital participation includes such factors as lack of internet access in remote and rural places and barriers to the acquisition of the technologies and related software needed to access the materials for online learning, which negatively impact motivation and participation.
2. **Digital literacy:** Students in general are “poor at deploying their digital skills in support of learning” (Beetham et al. 2010). This issue is particularly important in a widening context of participation (Cannell and MacIntyre 2017). Digital literacy remains a barrier for online learning environments in terms of students’ technological skills and how they navigate media (Olesova, Yang and Richardson 2011). Even when instructors provide access to computers and software, the complexity of the online learning environment makes it difficult to use the technology (Warschauer and Matuchniak 2010). Lai (2015, 675) notes, “The digital divide is not simply the haves or have-nots problem with access to and usage of technology and information. Rather, it is a social and political problem associated with social stratification and inequality in the digital technology age.”
3. **Quality of instruction and resources:** Online learning can be more cognitively challenging than in-person class discussions (Tandy and Meacham 2009), increasing the need for quality instruction and resources. Yet a lack of consensus on models exists about how to design online courses (Crouse, Rice and Mellard 2018) and guide quality instruction and resources.
4. **Pedagogy**
 - ✦ *Equity mindedness* entails recognizing the ways in which systemic inequities disadvantage people who experience marginalization, critically reflecting on your role and responsibilities in addressing inequities, and reframing negative outcomes as an indicator of institutional underperformance (Harris and Woods 2020). Diversity is complex, and intersectionality needs to be addressed to engage diverse learners in online environments (Goold, Craig and Coldwell 2007) in terms of course content, design, delivery, and faculty professional development (Crouse, Rice and Mellard 2018).
 - ✦ Online learning enrollment is on the rise with increasing diversity, which presents challenges for instructional designers to keep up with the volume and non-heterogeneity of student learners (Casarez and Shipley 2016; Warschauer and Matuchniak 2010). The design of instruction is not culturally neutral. In attempt to be culturally affirming, educators must acknowledge and leverage the cultural strengths of diverse students by including assorted images and variable assignments as well as intentionally highlighting the strengths that people who experience marginalization bring to society (Harris and Woods 2020).
 - ✦ Online environments are often not designed for diverse learners or retrofitted for accommodations (Tandy and Meacham 2009). UDL is necessary to create accessible online learning environments and course materials.
 - ✦ A lack of social interaction is the most severe barrier to online learning, according to a study by Muilenburg and Berge (2004). Since the sense of isolation is easily experienced in online environments, the need exists for intentional community building to promote social engagement (Olesova, Yang and Richardson 2011).

THOUGHT LEADERSHIP

This study brought together voices from academic research, B.C. PSIs, and B.C. post-secondary students to identify barriers to online learning and strategies for the improvement of online learning, teaching, and educational technologies. The study synthesizes the barriers and evidence-based strategies related to access to materials, digital literacy, quality of instruction and resources, and pedagogy in online learning.

This portion of the report provides a strategic overview of the barriers and evidence-based strategies in online learning through an intersectional lens with the aim of improving learning conditions for a diverse spectrum of students. The research aims to influence institutional policies, professional development, decision-making, and strategies for working with educators, instructors, support staff, and students in the area of online learning.

Equity and Online Learning

Equity is about fairness and access to opportunity. Online learning offers continued education for people in remote or rural areas as well as those who are working full-time, have caregiving responsibilities, or are unable to physically attend a classroom setting (Parks, Gregory, Fletcher, Adlington and Gromik, 2015). Equity asks us to critically examine the systems in place in which some groups or learners are privileged more than others. In Figure 1 the systems are the fence that prevents some from seeing the game and privileges those who are tall enough or have access to materials that can provide a boost.

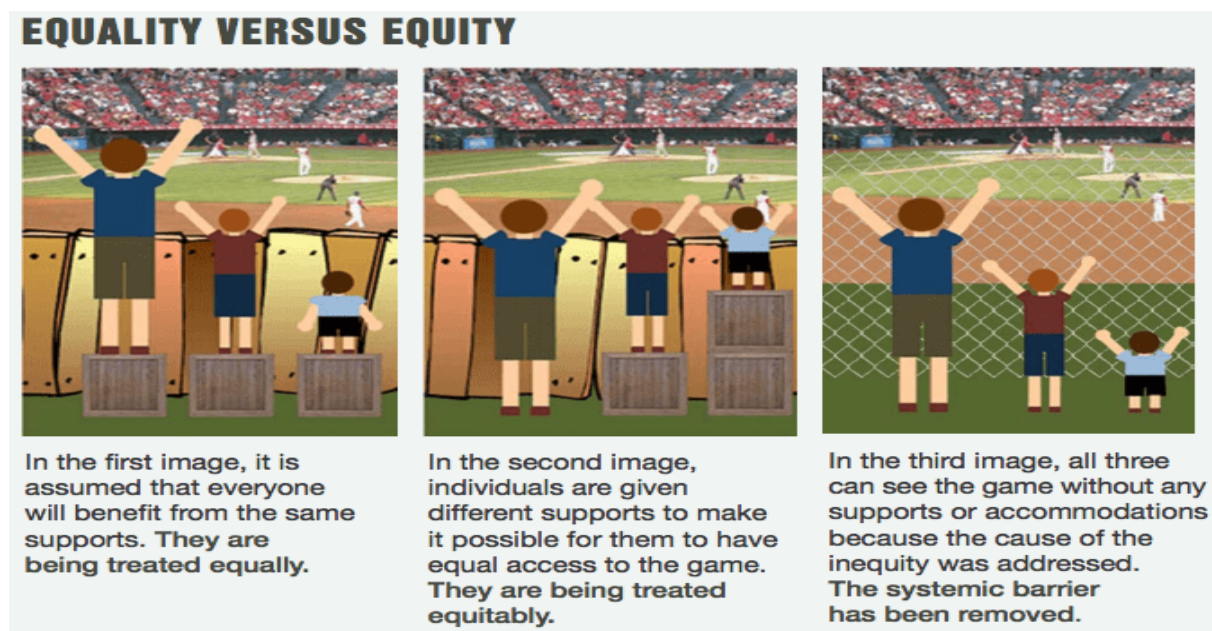


Figure 1: Concepts of equality, equity, and justice. Courtesy of [Advancing Equity and Inclusion: A Guide for Municipalities](#) by City for All Women Initiative (CAWI), Ottawa.

In online learning the foundation for making opportunities more equitable involves having access to materials and digital literacy. Making the learning experience more engaging involves making the materials, or pedagogy, more accessible and increasing the quality of instruction and resources. In examining current literature, speaking with B.C. PSIs, and hearing from students about their online learning experiences, we learned an opportunity exists to create more online environments where diversity is addressed and respected more intentionally. This is not to say that this is not done, but it can be done better.

In the past decade, post-secondary education was increasingly influenced by diversity through internationalization, Indigenization, and equity and inclusion. It is now critical to look at how people who experience marginalization are further marginalized, particularly given that online learning has been constructed within the same Eurocentric parameters as other modes of learning and exists within the very systems that

marginalize peoples who are outside the dominant group (Morong and DesBiens 2016). Overall, according to the literature, people who experience marginalization are faced with Eurocentric and ableist delivery, yet these students are found to have different needs to achieve success in an online learning environment (Srichanyachon 2014).

Key Take-Aways

PSIs need to invest more in digital innovation to keep up with the demands of the workforce and society in general (Lewington 2019). “We are moving to an era where all faculty need to have a level of confidence with online learning and technologies. This is no longer optional but is core to the university learning environment” (Moreira 2016, 267). The investment from institutions must put diverse learners at the centre, which would mean that in offering online education, standards should be developed for the creation of online courses (Moreira 2016). This investment would look to building, supporting, and standardizing professional development requirements for faculty who instruct online courses (Klesinski, Nelson-Weaver and Diamond 2014). PSIs that offer distance education would also ensure access to technologies, software programs, and related orientations on how to use these complex systems, especially for the remote communities they are trying to reach. Institutions may wish to consider developing a strategic plan for online education to ensure that equity is addressed and accounted for on an annual basis.

With respect to pedagogy and online course design, courses should have flexibility and adaptive measures built into them. UDL frameworks need to be considered and implemented at the course-design phase so that elements for diverse learners are proactively built in from the start. Using a UDL framework during the design phase is cost efficient as it saves the time and resources involved to retrofit courses (Tandy and Meacham 2009), which many institutions report as part of their existing process. UDL requires multiple means of representation, expression, and engagement (Coolidge, Doner, Robertson and Gray 2018).

Another aspect that is critical with diverse student populations is that courses are designed with diverse students at the centre (Harris and Woods 2020). This means that the course content reflects diverse epistemologies and ontologies (Lethwaite, Knight and Lenoy 2015). For example, environmental sciences should not be based just in Western science but also include local Indigenous perspectives on the land. In order for people who have experienced marginalization to feel included in online learning, they need to see themselves represented through course images, content, and ways of learning. This might mean some students turn in assignments as text, while others submit audio or video files. To ensure success in online environments, courses must be relevant and culturally affirming, with curricula that intentionally include images and stories that expose how people who experience marginalization contribute to society (Harris and Woods 2020).

Online learning is more than just accessing materials and content; it requires different types of interaction (Altowairiki 2016). Good practices suggest that an effective strategy for increasing the quality of learning experiences for students is for instructors to conduct an informal needs assessment at the beginning of the course (Harris and Woods 2020; Cowherd 2014) to understand students’ previous experiences with online learning and the strategies that work best for them. The course design should be flexible and adaptive enough for instructors to modify based on the needs of particular classes.

Instruction of online classes needs to be humanized, personalized, individualized, proactive, and present (Harris and Woods 2020; Delahunty, Verenikina and Jones 2014). Too often online learning increases a sense of isolation for learners; this is compounded for remote and rural learners (Parks, Gregory, Fletcher, Adlington and Gromik 2015). Personalized, humanized approaches involve instructors creating a sense of a community by sharing information about themselves outside of the course content (Carr 2002; Lagier 2003). To keep the engagement of people who have experienced marginalization, instructors may have to reach out individually through phone, email, and office hours. Equity-seeking groups have a tendency to be at-risk as they have historically not been included in Eurocentric, Western, ableist curricula, so instructors are advised to be proactive in reaching out in advance and remaining present throughout the course (Harris and Woods 2020).

Some faculty and staff may be resistant to online learning as they may lack familiarity with online technologies and effective online pedagogies (Moreira 2016). Teaching online courses is often off the side of the desk of a full-

time position (Moreira 2016). Professional development for faculty and staff in online curriculum and pedagogy varies, takes a significant amount of time, and is often perceived as lacking or insufficient (Bates 2018; Crouse, Rice and Mellard, 2018; Moriera 2016). Technology-related professional development should help teachers work within their contextual conditions as opposed to being built around a “one model that fits it all” perspective that focuses on the technology (Lewthwaite, Knight and Lenoy 2015).

PSIs in our study reported that no systematic professional development exists for online learning; this is required because instructors simply receive a course outline and have limited course design experience. Many institutions also reported that most instructors are not educated for online teaching and design; they are subject matter experts but have limited online teaching skills. Further, PSIs recognized that instructors would benefit from working on their own intercultural development. This might help some instructors move from deficit thinking to culturally affirming approaches. Instructors would benefit from institutional support and strategies to provide inclusive education for equity-seeking groups. Many instructors said they need more time and support to improve their practice to provide high-quality educative experiences, and they feel they are asked to do things without the time or support to get them done to a high quality. Faculty need time and support to improve their practice, yet senior management seem to have a perspective that online course design takes less time, while instructors are overloaded.

When we asked institutions how they could be better supported in their roles, institutional participants responded as follows:

Recommendations from Institutions to Build More Inclusive Online Learning

The top recommendations from 13 PSI in B.C. for inclusive online learning are:



- Institutions should provide support for the collaboration between content experts, course design experts, and teacher experts and recognize the need for these three distinct positions.



- A provincial blended online working group/ advocacy group to ensure consistency in online learning across all institutions.
- More professional development opportunities related to accessibility, inclusivity and online teaching and learning.



- More support to implement UDL principles for more accessible teaching and learning (for example, it requires a lot of work to make captions for each video).
- Greater representation and leadership from equity-seeking groups to best support accessibility needs. Additional resources or support to remove stigma with disabilities, especially mental health disabilities.



- Provincial support for software and educational technologies set-up and licensing costs.
- Mandatory accessibility modules for new faculty and staff and early access to resources before they develop their courses because it is difficult to change the work afterwards.
- Continued support from BCcampus. Institutions noted that BCcampus is a great repository and has the respect of people in industry. Webinars are valuable and these are broadcasted widely.
- A provincial resource hub, particularly for sessional instructors, for open-educational resource materials.

Student Suggestions for Online Learners

The top suggestions from students for other students with respect to being successful in online learning are outlined below:

Suggestions for Students from Survey Respondents

The top recommendations for students from 342 students in online learning are:



Time management:

- online learning requires full commitment
- practice self-care, take breaks
- make goals and set a learning routine
- be consistent with routine, be persistent and keep your goal in mind
- add in extra time for technical difficulties
- do not leave things until the last minute or fall behind
- it is more common to feel overwhelmed in online learning



Study Skills

- get help with writing so that you can clearly express your ideas
- use writing centre help when possible
- read everything thoroughly so that you understand what is required



Advocacy

- talk to instructors and express needs early
- reach out to librarians
- check if institution support educating faculty for online learning
- seek support if your instructor is not responding



Social support

- if you are a part of a cohort, reach out
- support your peers in discussions
- create a social group outside of the online classroom
- good planning for group work, make chat and study group
- check blog or chat forum



Technology:

- when possible, ensure computer has enough ram to handle video streaming
- make time to learn platform and navigation of course

High-Level Summaries of Barriers and Evidence-Based Strategies

The following pages provide high-level summaries of the key findings of this research: access to materials, digital literacy, quality of instruction and resources, and pedagogy. The complexity of intersectionality is understated in the findings, as the data collected did not have intersectionality as a focal point, and the student participants were not adequately representative of equity-seeking students. As such, the equity-seeking groups originally investigated are not identified individually; this would not demonstrate fully the complexity of the learning experience and the barriers to online learning.

Access to Materials

Access to materials, technology and reliable internet services are ongoing barriers for remote and rural learners, as well as students from low socio-economic status, and equity-seeking students will have further compounding barriers. For example, some people with disabilities have to pay for accommodations or medication, which impact the resources they have available for online learning.

BARRIERS

Socioeconomic status affects computer ownership and ability to pay for internet and hardware/software



Remote and rural learners may have to travel long distances to access a computer or reliable internet



Impact of poverty affects motivation for online learning



Access to reliable Internet is a concern for remote and Indigenous communities and is a human rights issue across Canada; if internet is not stable, videos and multi-media will not stream



Access to equipment for engagement such as microphones, webcams, and software limits access to materials for online learning



Access to materials is limited if not in compliance with accessibility standards



EVIDENCE-BASED STRATEGIES

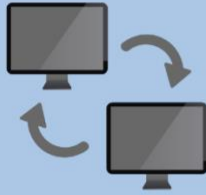
- provide hardware requirements, technical support, and guidance on hardware and software to support troubleshooting of problems
- support under-served populations (e.g. people with disabilities) on how to use the hardware and software
- communicate to students about the supports and resources available and how to access supports; provide online tutors
- offer free and/ or library supports for software needs to access course materials, e.g. access to special software and data support such as Jaws, ZoomText Fusion, EasyReader, digital talking books
- if students have to travel to access materials, ensure they are easy to download and files are not too large; use cloud-based shared document handouts (i.e. Google Docs, Dropbox, OneDrive)
- offer alternative way to connect, for example, some students will not be able to meet over webcam
- design materials for access via mobile phones to support those without home computers
- provide a range of resources including PDF and Word downloadable documents, articles, videos, podcasts (where Internet connect may be poor), URLs to relevant sites
- consider remote library that would go around to communities, to allow access to materials

Digital Literacy

Digital literacy is the ability to use information and communication technologies to find, evaluate, create, and communicate information, requiring both cognitive and technical skills.

BARRIERS

Computer use varies between socioeconomic & cultural lines



New media and software takes time to learn



Some learners need ongoing support and encouragement



Knowing how to contribute to group discussions in online environment can be intimidating



Technology breakdowns and related financial and time barriers



Assumed digital literacy of younger generations does not account for skills and abilities required for online learning



EVIDENCE-BASED STRATEGIES

- digital inclusion places an emphasis on: 1) enhancing digital literacy, therefore support learners and teachers with digital literacy by having technology forums, tutorship support, social networking sites, and virtual dialogues for peer learning to address needs, and 2) support for under-served populations (e.g. people with disabilities) on how to use the hardware and software
- create a sense of community as social collaboration and social interrelations enhance digital literacy
- make the teaching content more attractive (use simple interface with intuitive navigation) and pace the course appropriately and accessibly to students with diverse digital literacies
- foster self-learning and self-organization to promote digital literacy
- provide tips and tricks for digital learning before the course and within the course
- the importance of building relationships and create a sense of community as social collaboration and social interrelations enhance digital literacy and the use of information and communication technology

Quality of Instruction and Resources

Quality of learning refers to materials, activities, readings, clarity in expectations, ease of course navigation, learning outcomes and assessment, and instructor presence.

BARRIERS

There are a lack of models, instruction, regulation and systemic on-boarding for the design of online courses



Lack of instructor presence and availability and/or timely and appropriate feedback contribute to poor quality of learning



The cost and time of producing high quality multimedia elements in a course is prohibitive for some institutions, as well as ensuring those elements are accessible



Text heavy course materials with only written assignments does not offer flexibility and can lead to further marginalization. For example, oral based cultures would do better with more podcasts and voicethreads



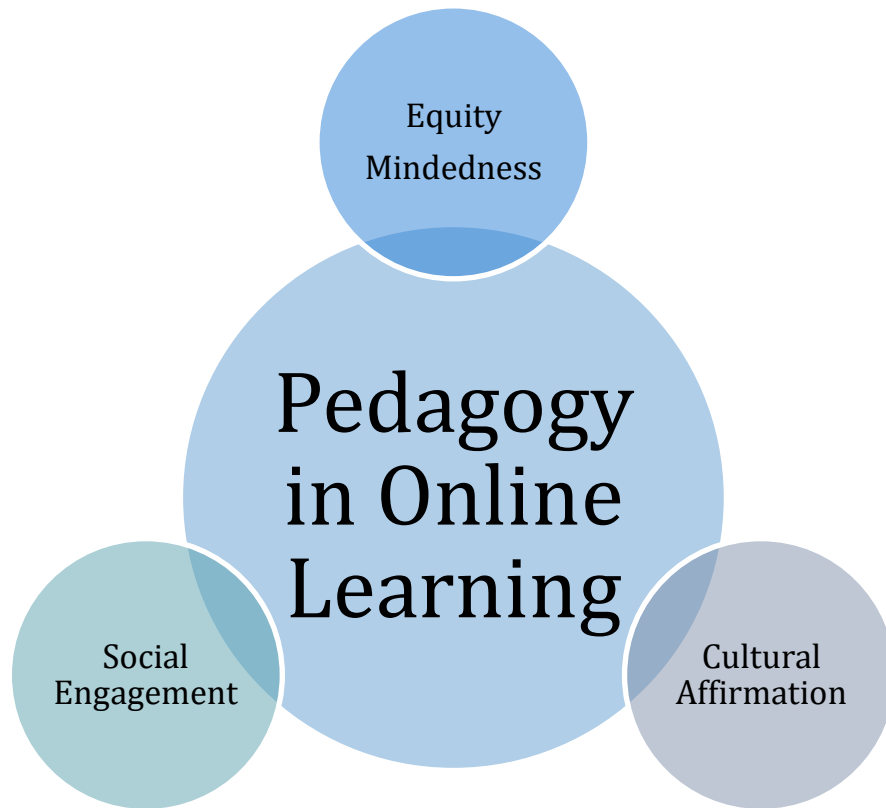
Unclear expectations about what constitutes participation, what is required in assignments, the availability of resources, and complex course navigation



EVIDENCE-BASED STRATEGIES

- instructor is proactive and reaches out to each student at the start of course to establish relationships, and continues to initiate contact through out the course
- instructor is present to answer questions, give feedback on time, engage in live discussions, engage in check-ins, participate in collaborative meetings and calls, and practices clear communication about expectations throughout the course
- effective strategies reflect flexibility: offer alternative assignments that demonstrate the outcomes in multiple ways: using mind maps, songs and poems, blogs, websites, powerpoint presentations and use of technology
- begin by conducting informal needs assessment and ask students what they might need in learning online and seek to provide relevant resources
- use accessible resources help to retain the audience and create quality resources. See BCCampus Self-Publishing Guide: Accessibility, Diversity, and Inclusion
- videos are of high quality and convey personable message, videos have language support including transcripts, subtitles, and when possible, translation of the content videos into different languages.

Our research identified three areas that provide a framework for thinking about pedagogy in online learning: equity mindedness, cultural affirmation, and social engagement.



Equity Mindedness in Online Learning

Equity Mindedness entails recognizing the ways in which systemic inequities disadvantage people who experience marginalization, critically reflecting on one's role and responsibilities in addressing inequities, and reframing negative outcomes as an indication of institutional underperformance (Harris & Woods, 2020).

BARRIERS

Professional development in online learning lacks explicit teachings on designing for diverse students and accessibility



Respect and value for diversity needs to be embedded into course design, otherwise diverse students are likely to experience further marginalization



The focus of online course design is often a blend of content and technology, which does not account for diversity and student contexts



Many courses are retro-fitted to accommodate diverse learners, and have a tendency to be designed to fit the dominant norm



Tendencies towards Eurocentric and Western epistemologies and ontologies are a way in which diverse people can experience marginalization



EVIDENCE-BASED STRATEGIES

- use diverse communication methods: asynchronous and synchronous, point out trending conversations, personalized emails
- Universal Design for Learning (UDL) principles as an educational framework assists instructors to design an inclusive learning experience to improve teaching and learning for all people (Meyer, Rose, & Gordon, 2014)
- UDL acknowledges diversity of learners and encourages instructors to use multiple pathways for engagement, representation, and expression. For example, instead of posting static slides, instructors should provide students with a combination of slides with text, links to video clips, audio recordings, and graphics
- use assessment strategies that focus on continuous improvement, create several smaller point assignments, grade based on effort, give personal feedback, and offer non-text based assignments
- humanize yourself, create a video/ audio introducing yourself to build trust
- reject socialized deficit-based ideas about student success
- understand the scholarship on microaggressions and take responsibility to ensure students are not experiencing microaggressions online

Cultural Affirmation in Online Learning

Faculty and instructional designers need to address socio-cultural differences in online learning environments in order to create a sense of belonging for all students -"culture pervades learning, and in designing instructional environments there needs to be serious debate about issues concerning the social and cultural dimensions of task design, communication channels and structuring of information if the needs of culturally diverse learners are to be met, and that educational technology choice have values and assumptions" (McLoughlin & Oliver, 2000, p.59).

BARRIERS

Cultural safety needs to be addressed, which looks to ensure respect, inclusion and empowerment



Eurocentric design, content and technologies can further isolate diverse learners



Multilingual learners and students with diverse learning needs do better with plain, simple English as well as the opportunity to submit assignments in alternate formats from writing



Students from international pathways may experience three kinds of problems: cultural adjustment, language issues and learning issues relating to different expectations and perspectives on learning



Ongoing stereotypes of cultural groups are still experienced and instructors need to critically reflect on their role and responsibility in supporting diverse online learners



EVIDENCE-BASED STRATEGIES

- culturally relevant teaching includes an ability to have content that relates to students' lived experiences
- acknowledge cultural strengths of diverse students
- foster learner-centered interactions; this knowledge includes awareness of students' (1) social obligations, (2) geographical location, (3) literacy and linguistic capabilities, (4) limited prior tertiary experience, and (5) socio-cultural-political background
- practice culturally safe learning, which includes sharing power and supporting equal engagement between different worldviews
- offer alternative assignments that demonstrate the outcome in multiple ways: using mind maps, songs and poems, blogs, websites, powerpoint presentations and use of technology
- recognize that online team project work is challenging; be intentional in assigning groups and provide diverse teams tools to support the intercultural interactions

Social Engagement in Online Learning

Online learning can increase a sense of isolation, in traditional pedagogy the act of thinking together in a classroom builds a sense of community and connectedness, which may be missing in asynchronous learning as meaning-making through non-verbal cues such as tone and gestures are absent, and impact socio-emotional learning.

BARRIERS

Many learners report increased sense of isolation in online environments



Asynchronous activities can feel like forced or artificial communication



Mature online learners are likely motivated by credentials and with competing responsibilities, and may be less likely to develop relationships in online classes



Student concerns of being polite or saving-face can lead to downplaying expertise and as such can impact learning aims



Cultural tendencies such as individualism can negatively impact interaction and collaboration



EVIDENCE-BASED STRATEGIES

- design a community building event, to bring learners together to share in a safe space, in order to set the tone for the course - this helps equity-seekers to disclose information to the instructor and to voice their needs
- try different platforms for interaction such as social media to increase interaction and meet the needs of diverse learners
- create collaborative events and flexibility in engagement to facilitate more group connections
- encourage students to reach out to their peers, create a support group, and/or make a chat and study group
- provide opportunities for students to share stories of how they are relating to the content, use icebreakers in synchronous sessions so that students share parts of themselves not related to the course
- intentionally form groups and give the groups the tools they need to succeed (rubrics, guidelines, check-ins)

Future Research

Each of the four themes of access to materials, digital literacy, quality of instruction and resources, and pedagogy could serve as a focus of four distinct research projects. We recommend resources be allocated to research specific demographics beyond the broader umbrella of equity-seeking groups in B.C., as each demographic presents its own context, complexity, and intersectionality. More advocacy and provincial regulations, policy, and legislation about equity mindedness, cultural affirmation, and social engagement in the design of online learning would benefit the field and improve the conditions for teaching and learning for a broad spectrum of online students. Further, a theoretical understanding of how diverse people learn in online environments would better support the field.

We recommend that future researchers consider partnering with such organizations as BCcampus and work with the Ministry of Advanced Education, Skills & Training to access more diverse students across B.C. PSIs. This might eliminate some of the barriers and limitations experienced in this study to researching a broader spectrum of equity-seeking students. It is critical for this kind of research to partner with industry organizations such as the First Nations Education Steering Committee, Inclusion BC, British Columbia Council for International Education, and other provincial organizations that are invested in diverse populations in B.C.

METHODOLOGY

The framework of this research was mixed methodology, and we used qualitative and quantitative methods. The conceptual framework that supported our data collection, analysis, and interpretations of the findings centred on access to materials, digital literacy, quality of instruction and resources, and pedagogy in online learning with specific focus on rural, remote, and equity-seeking students.

Theories of intersectionality drove the conceptual framework. The undercurrent is that marginalized peoples are rarely oppressed in only one aspect of their identity, which may present in this study as multiple barriers to successful online learning (Crenshaw 2018). We understand that marginalized students go beyond the scope defined for this research, which included international students, students with disabilities, Indigenous students, and remote/rural students. We believe the four equity-seeking groups defined by the Canadian Employment Equity Act (women, Indigenous, people with disabilities, and visible minorities) do not fully encompass the recent changes in diversity in the B.C. landscape of marginalized peoples, which includes immigrants, newcomers, and refugees; English as an additional language learners; gender-diverse people, and LGBTQ+ people. Further, the complexity of intersectionality is understated in the findings, as the data collected did not have intersectionality as a focal point, and the student participants were not adequately representative of equity-seeking students. As such, the equity-seeking groups originally investigated are not identified individually; this would not demonstrate fully the complexity of the learning experience and the barriers to online learning.

Our philosophical position is based in an ontological and epistemological stance that a singular fluid or fixed reality does not exist and that multiple realities are socially constructed (Wilson 2001). Blair (2015) labelled this an interpretivist view and suggested that an understanding of the world occurs through interactions with others. The institutional and student participants' voices constructed the goal of this research.

Data Sources and Analysis

To address the goals of this study, we used three data sources:

- Literature and scholarship in the field of online learning and the online learning of equity-seeking students
- B.C. PSI perspectives
- Online learners in B.C. PSIs

The research design involved data collection and analysis. This was followed by an interpretation of the commonalities and distinctions between the scholarship, institutional practices, and student participants' voices to identify the challenges and strategies that improve learning, teaching, and educational technologies for online learning for a diverse spectrum of learners. Our interpretation of the findings centred on access to materials, digital literacy, quality of instruction and resources, and pedagogy in online learning with a specific focus on rural, remote, and equity-seeking students. Our findings resulted in three foundational underpinnings for pedagogy in online learning: equity mindedness, cultural affirmation, and social engagement.

The sections below provide details about the data sources and our methods of data analysis.

Literature Review

We conducted a thorough search of academic, peer-reviewed, and published research in databases, library journals, dissertations, books, encyclopedias, handbooks, and Google Scholar. We agreed to 42 articles for the literature review.

The percentage of the articles in the literature review that focused on the topics of online learning and equity-seeking students were as follows:

- Indigenous: 14 percent
- International/intercultural: 33 percent
- Students with disabilities: 17 percent
- Remote/rural: 19 percent
- General: 40 percent
- Intersectionality: 11.3 percent

We parsed each article for content related to the following questions:

- What does contemporary research say about marginalized peoples in online environments?
- What are reported issues and barriers for online environments/learning?
- What relationship exists between barriers to online environments/learning and systemic issues that affect marginalized peoples' ability to successfully participate in post-secondary education?
- What are reported evidence-based strategies to overcome barriers to online learning and inclusive education?

Once we had collated all data, we distilled the content to provide an overview of access to materials, digital literacy, quality of instruction and resources, and pedagogy in online learning with a specific focus on rural, remote, and equity-seeking students.

PSI Interviews

We invited all B.C. PSIs to engage in a conversation about EDI and online environments. We targeted invitees from EDI offices, teaching and learning centres, centres of online education, Indigenous student centres, international student centres, centres for students with disabilities, and other equity-support units. Eleven B.C. PSIs participated in the research.

We used an email protocol to connect with institutions. We sent the research purpose, definitions, questions, and informed consent.

We met with B.C. post-secondary educators in person or online to conduct open-ended interviews. The questions that guided the discussions were as follows:

1. What are your concerns regarding online environments, especially for EDI?
2. What are your online pedagogical practices, with a focus on access to materials, digital literacy, quality of instruction/resources, and pedagogy?
3. Do your online strategies differentiate for EDI? In what ways?
4. How could you be better supported in your role?

We transcribed the discussions from each participants and coded them using NVivo, a qualitative and mixed method software analysis tool (QSR International 2018).

We summarized the discussions relating to the four questions and coded the responses according to access to materials, digital literacy, quality of instruction and resources, and pedagogy.

The method of open coding is incommensurable with our philosophical position: in emergent coding and drawing from grounded theory methodology (Glaser and Strauss 1967), the implication is a truth exists awaiting discovery. Template coding is an a priori method wherein the codes are defined by the researcher prior to the analysis and drawn from literature, research, and theory specifically related to the research question (Crabtree

and Miller 1992; King 1998). For the template coding in this study, we relied on post-coding as an analytical technique that “can be thought [of] as non-technique and non-method that is always in a process of becoming as theories interlink, intensify, and increase territory—spreading out and overturning the very codes that structure [them] . . . putting them to strange new uses” (Deleuze and Guattari 1987, 11, 15).

Template coding is orientated to interpretivist thinking rather than the positivism of open coding. Template coding is “skeptical of the existence of real internal states, which can be discovered through empirical research” (King 1998, 119). The data analysis is deemed trustworthy, and the need for intercoder reliability in the coding and thematic analytical process was not required as per Blair’s (2015) argument that “there is very little guidance on how researchers can work together to form inter-coding groups” (Campbell, Quincy Osserman and Pederson 2013), and there is “no clear evidence that the inter-coding of qualitative data is ever truly dependable” (Zhao, Liu and Deng 2013).

Student Survey

We developed the student survey questions from notes collected from PSI interviews, Bates’s (2018) study, literature and scholarship in the field, and reviewing the first-year National Survey of Student Engagement questions. We piloted the survey with student participants and integrated their feedback to refine the tool. We administered the survey to students through institutional liaisons after fulfilling the ethics requirements for each institution. Three hundred and forty-two students participated in the survey.

Students were informed of the following to invite their participation in the study:

The goal of this survey is to hear from you, as a student, about your online learning experiences. We would like to know about what you might find challenging about online learning and the kinds of supports that are helpful for your learning.

Participation in this survey is voluntary, and all responses are anonymous; individual responses and personal information will not be disclosed. You may skip any questions that you do not want to answer.

This survey is a result of a project funded by BCcampus to “further B.C.’s efforts in reaching rural and remote learners as well as potential students (both urban and rural) who have barriers preventing them from being successful in an online learning environment. Specifically, we want to foster research on increasing the inclusion of equity-seeking groups who need to learn in an online environment.” Equity-seeking groups may include but are not limited to students with disabilities, Indigenous students, students from international pathways, newcomers, refugees, and English as an additional language learners.

The data are collected under the authority of the University Act (RSBC 1996, c.468) and the BC Freedom of Information and Protection of Privacy Act (RSBC 1996, c.165) and subject to protections under the acts. Questions about the collection, use, and disclosure may be directed to Heather Williams at ableresearchco@gmail.com. If you have technical difficulties with the survey, please contact Andrea Sator at ableresearchco@gmail.com.

We analyzed the survey results using quantitative and qualitative approaches and NVivo.

Study Limitations

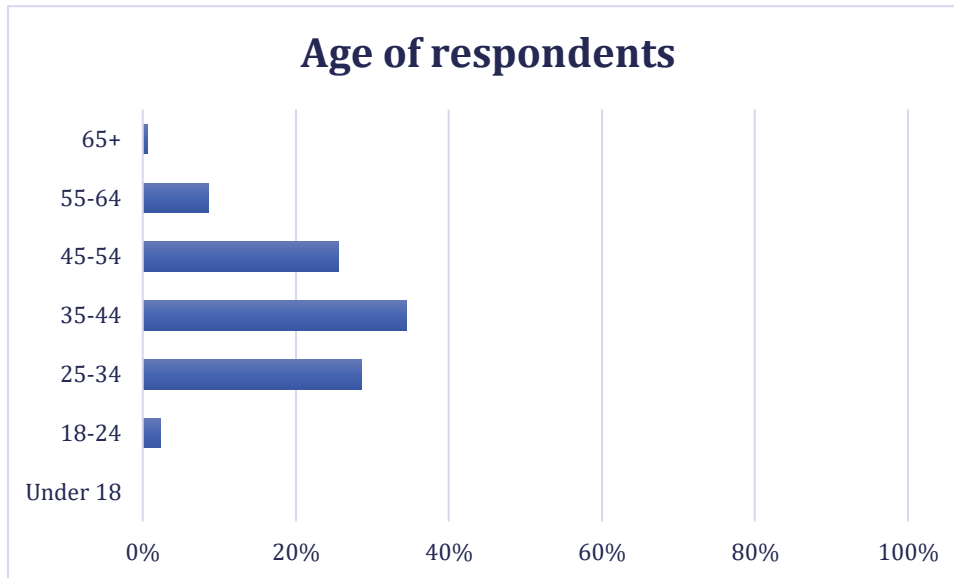
As we are independent consultants, the process of attaining ethics for this study did not follow a linear path. Originally, we were advised that as this study was being conducted through research consultants and there was no requirement for an ethics review as the research was not being conducted from within a Tri-Agency Framework. However, as we approached each PSI, various ethics issues surfaced that delayed the administration of the survey to students. Some PSIs required the simple completion of a document; others required a full ethics review, and a few PSIs settled for harmonized agreements. Ethics is an understandably complex issue, and each institution has particular requirements.

We completed all the ethics requirements for each PSI. We then asked each institution to support us to “kindly share the survey widely and broadly on your campus with programs/units/areas that have access to student email groups that fit the inclusion criteria.” Some PSIs completed the requirements more quickly than others, so it was challenging to know if each institution had ample time to connect with its diverse student groups before the survey closing date. Additionally, as the student survey was anonymous, we are unable to identify if every PSI that participated had the opportunity to connect with their students to seek input. The results of the student survey indicate that the international student demographic was 3 percent. This percentage of international student responses is very low and not aligned with the literature we reviewed; nor does it correspond to institutional conversations that suggest international student participation in online courses is much higher. We are not able to provide in-depth analysis of international students’ responses in this report. Additionally, the findings depict that 97 percent of respondents had access to materials, which indicates that the survey did not necessarily reach the equity-seeking students and may not be entirely representative of the students we were hoping to reach.

STUDENT SURVEY RESULTS

Demographic Information

Age



31 per cent of respondents were 18–34 years old.

69 per cent of respondents were mature learners 34–65 years old.

Gender Identity

214 female

94 male

1 nonbinary

Rest preferred not to answer

North American Indigenous Aboriginal Individual—First Nations, Métis, or Inuit, status or nonstatus

5.95 per cent identified as North American Indigenous Aboriginal.

Canadian Citizen/Permanent Resident or Visa Students

96.73 per cent of respondents identified as Canadian citizens/permanent residents.

3.27 per cent were Visa students.

Language

81 per cent of respondents identified English as their primary language.

Other languages identified were French, Spanish, German, Persian, Hungarian, and Russian. Only one Asian language, Vietnamese, was identified.

Persons with a Disability

3.89 per cent of respondents self-identified as having a disability. Some respondents gave details about their disability being mobility, mental health, or learning related.

Urban/Rural

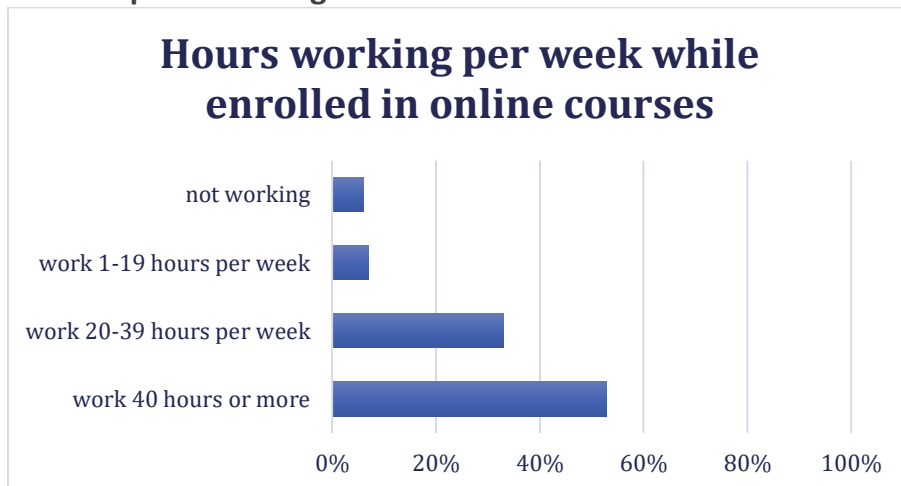
75 per cent of respondents lived in cities/urban areas.

25 per cent of respondents lived in small towns (15.88 per cent) or remote/rural areas (9.41 percent).

Children or Other Dependents

42.90 per cent of respondents identified as caregivers.

Hours Spent Working



52.96 per cent of respondents worked 40 hours or more.

33 per cent of respondents worked 20–39 hours per week.

7 per cent of respondents worked 1–19 hours per week.

6 per cent of respondents were not working.

Motivation for Taking Online Course

“I live a far distance from school”: 36.52 per cent

“This was the only way to get my required class”: 23.77 per cent

Other (e.g., work, to receive credentials, no other option): 51.01 per cent

Our findings from the literature indicate that student motivation for learning has shifted from knowledge for knowledge’s sake to seeking out qualifications or working around employment and family commitments (Lewington 2019; Goold, Craig and Coldwell 2007). Mature online learners who are more likely juggling several responsibilities are less likely to be motivated to develop interpersonal relationships and more likely motivated by tasks and assessments (Delahunty, Verenikina and Jones, 2014). The literature also indicates that flexibility around work/life is one of the reasons for choosing online learning, yet time barriers to completing online courses persists (Delahunty, Verenikina and Jones, 2014; Olesova, Yang and Richardson 2011).

Ability and Skills

Participants were asked about their ability and skills related to digital literacy and comfort with digital technology. The responses were as follows:

- 77.68 percent of participants were very comfortable and 22.61 percent were somewhat comfortable using online platforms, navigating the internet, and communicating effectively through digital means.
- 84.88 percent of participants were very comfortable and 14.83 percent were somewhat comfortable in their skill level with digital technology, including typing, downloading software, navigating the internet for resources.

Access

Participants indicated that they feel supported in their online learning experiences, with good access to personal computing and resources that support their education. In the access-related inquiries, the findings were as follows:

- 97.08 percent of participants had access to a personal computer at home, and 2.92 percent indicated they used their work computer.
- 90.70 percent had access to resources that supported them as an online learner; 2.91 percent did not. 6.4 percent said they somewhat had access.
- 83.53 percent stated that online learning increased their access to education; 5.78 percent did not feel this way, and 10.69 percent said it somewhat increased access.

Barriers to Online Learning

The barriers to online learning as reported by participants were as follows:

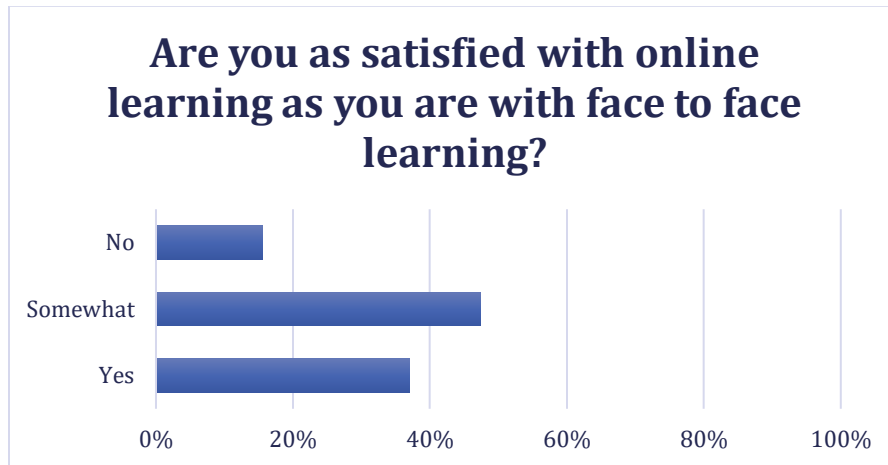
1. Groupwork is difficult to schedule due to time conflicts.
2. There is a lack of support for networking and a lack of participation in discussion groups and forums, which create a barrier to relationship building with instructors and classmates. More collaborative events and flexibility in engagement are needed to create more group connections.
3. Course expectations are unclear, and more structure and support for resources and tools are needed.
4. Instructor availability poses a barrier, as do slow responses and feedback.
5. The course requires too much reading; the forums are slow and navigation is time consuming; the lessons feel repetitive; the course is hard to navigate, is poorly organized, and has no clear template; and there is a lack of instruction about the tools.
6. Does not suit all learning needs.
7. Grading is unclear.
8. Self-learning, organization, motivation, dedication, desire, and interest may be barriers.

Students often encounter issues with time management and the discipline to make time for study. Many online learners in our study were also working, but the course they took was a full-time commitment (Goold, Craig and Coldwell 2007). PSIs in the study reported barriers to online learning in language skills and that learning independently, self-direction, and inquiry-based learning is a challenge.

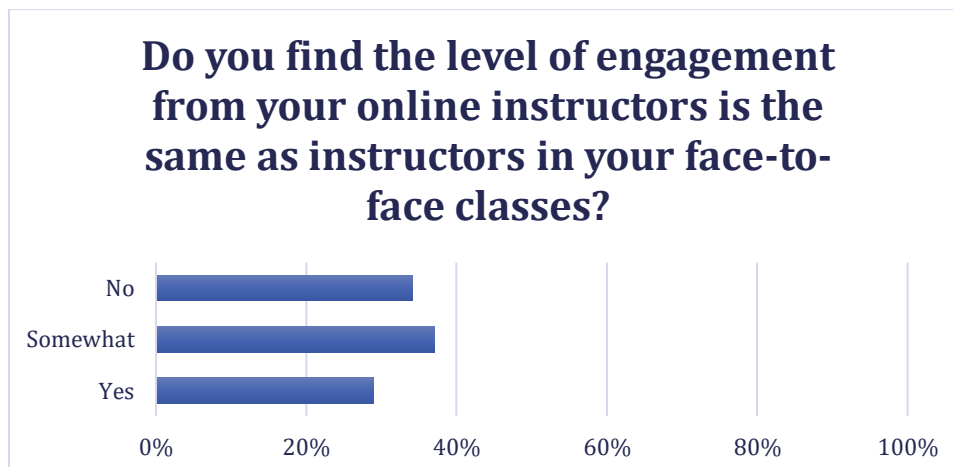
Satisfaction and Preferences

84.39 per cent of participants indicated they were satisfied and somewhat satisfied with online learning. This may be linked to the self-reported satisfactory access to personal computers and learning resources that support online education.

Specifically, participants who compared online learning to face-to-face learning indicated the following:



However, when asked if participants found the level of engagement from their online instructors was the same as instructors in their face-to-face classes, 65.89 per cent of respondents were satisfied or somewhat satisfied. The findings from the literature suggest that students perceive online learning as not as esteemed as face-to-face learning, that faculty are less present, and that online learning is about saving institutions money at students' expense (Goold, Craig and Coldwell 2007).



SYNTHESIS OF THE LITERATURE, INSTITUTIONAL CONVERSATIONS, AND STUDENT PARTICIPANTS

We synthesized the data from the literature, PSI conversations, and student surveys into the following categories: access to materials, digital literacy, quality of instruction and resource, and pedagogy. As mentioned, the complexity of intersectionality is understated in the findings, and the student participants did not adequately represent equity-seeking students. As such, the equity-seeking groups originally investigated are not identified individually as this would not demonstrate fully the complexity of the learning experience and the barriers to online learning.

Access to Materials

Barriers

The number of students taking online courses is increasing (Donovan et al. 2019), and alongside this increase is an upsurge of awareness about the diversity of student learning needs (Casarez and Shipley 2016). Although the diversity and learning needs of students is not in itself a barrier to online learning, systemic issues include the “increase in responsibility of higher education to provide inclusive and accessible courses and content delivery” (Casarez and Shipley 2016, 345) to support student access to materials for online learning. Underrepresented students face challenges in access to materials for online learning due to socioeconomic barriers and not being able to have cutting-edge technology or enough bandwidth to, for example, sustain high-quality video streaming (Cowherd 2014). Lack of access to a reliable internet connection and an adequate computer with the necessary software (e.g., Adobe, Word) is a fundamental barrier that affects students’ ability to participate in a fulsome manner (Lai 2015). Lack of internet access was a recurring theme in the literature and through conversations with B.C. PSIs. The impact of poverty on digital participation also emerged as a theme, which subsequently impacts attitudes about the internet in terms of motivation to learn online (Cannell 2017) and desire to access materials.

Lack of home ownership of computers is a barrier to online learning (Warschauer and Matuchniak 2010) reported frequently in the literature and institutional conversations. The systemic issue is reflected in the differential graduation rates between computer owners and nonowners (Warschauer and Matuchniak 2010) and the resulting varying ability to participate in online learning. “Part of the reason this differential is so high is that computer ownership correlates with a number of other factors associated with youth’s educational achievement, such as family income, race, or parents’ education” (Warschauer and Matuchniak 2010, 202) and internet access (Clotfelter, Ladd and Vigdor, 2008, cited in Warschauer and Matuchniak 2010, 202). Institutions reported that if a student’s only access to a computer is in a community learning center or library with set hours of operation, that student has limited access to materials and online courses.

Some PSIs reported that occasionally, learners have never touched a computer, cannot afford a computer, or have a slow internet connection that hampers their access to materials for online learning. PSIs suggested that online learners still request and prefer print over electronic texts and noted that students find electronic texts too challenging to use and navigate. Also, PSIs recognized the need to ensure online courses are mobile ready, as students often use mobile devices to access online course materials.

Retention and attrition are ongoing issues in online learning (Parkes, Fletcher, Adlington and Gromik 2015; Cowherd 2014). Some factors that impact remote learners’ participation and retention rates in online learning are text-based course design, caregiving for family members, and the need to work long hours (Parks, Gregory, Fletcher, Adlington and Gromik 2015). Technology breakdown, and the subsequent financial and time barriers, are cited as frequent reasons for delays in participation or late assignments (Lai 2015). Student participants in this study corroborated the literature; because they are often in different time zones and have less access to the internet or slow bandwidth, flexibility in assessment and submissions is warranted. Learning online in remote and

rural areas is challenged by the long distances required to use libraries and access the internet or a computer (Deden 2002) for the materials required in an online course. In online environments, students from remote and rural areas report feelings of isolation and difficulty in accessing a reliable internet connection, reinforcing the inequities between the haves and the have-nots (Parks, Gregory, Fletcher, Adlington and Gromik, 2015) and impacting their ability to use materials and participate in online learning.

Evidence-Based Strategies

Our review of the literature and institutional conversations offered many valuable evidence-based strategies to better support online learners' access to materials. These are captured below:

- ✦ Support and legitimize students' entry into the world of new media through the community as they acquire knowledge and competence with online learning.
- ✦ Provide hardware requirements, technical support, and guidance on hardware and software to troubleshoot problems such as how to use a learning management system.
- ✦ Communicate to students about the supports and resources available and how to access them; offer an online tutor or buddy system; and embed real-time text messaging for dialogues with tutors, teachers, and peers.
- ✦ Offer financial aid and awards to support online learning; use affordable OER materials.
- ✦ Offer free library supports for the software needed to access required materials, such as Jaws, ZoomText Fusion, EasyReader, and talking digital books.
- ✦ If students have to travel to access materials, ensure the materials are easy to download and files are not too large; use cloud-based shared documents (e.g., Google Docs, Dropbox, OneDrive). Consider establishing a remote library that could be physically moved to communities to allow access to materials.
- ✦ Design materials for access on mobile devices to support those without home computers.
- ✦ Ensure access to materials is multimodal and multimedia. Provide a range of resources: downloadable PDF and Word documents, articles, videos, podcasts (where internet access is limited), and URLs.

Digital Literacy

Barriers

Knowing how to use and participate in online activities with diverse technologies is an ongoing challenge (Klesinski, Nelson-Weaver and Diamond 2014; Cannell and MacIntyre 2017). Students in general are “poor at deploying their digital skills in support of learning” (Beetham et al. 2010). This issue is particularly important in a widening context of participation (Cannell and MacIntyre 2017). Digital literacy in online learning environments remains a barrier, particularly regarding students’ technological skills and how they navigate media (Olesova, Yang and Richardson 2011). The barriers layer over structural inequities, and when coupled with lack of skills necessary for online participation, they comprise a “second digital divide” (Cannell and MacIntyre 2017, 112). Even when instructors provide computers and software, the complexity of the online learning environment makes it difficult to use the technology (Warschauer and Matuchniak 2010). Lai (2015, 675) notes, “The digital divide is not simply the haves or have-nots problem with access to and usage of technology and information. Rather, it is a social and political problem associated with social stratification and inequality in the digital technology age.”

Media literacy skills are vital to digital literacy. According to an Instructional Technology Council (2009) study, online students did not feel they had such skills (Lai 2015). Helsper and Eynon (2013) noted the link between digital literacy and digital exclusion and the need for more nuanced understandings of digital engagement (cited in Cannell and MacIntyre 2017). Further, the notion of digital natives and digital immigrants is not useful for the field of educational technology and online learning. To corroborate the findings in the literature, PSIs in our study reported that students have limited computer skills and digital literacies, suggesting that even logging on to a dashboard for a university website causes some students stress and anxiety, particularly students with disabilities. Most students need more time at the beginning of a course to adjust to the technological requirements and course navigation (Olesova, Yang and Richardson 2011). Although some students are very comfortable with common technologies like wikis and blogs, others unfamiliar with them have a variety of usability reservations (Morong and DesBiens 2016). Student participants reported a need for more communication about the supports and resources available to them and how to engage with the online environment.

Computer use varies along socioeconomic lines in educational systems. For example, teachers in low-socioeconomic status communities were more likely to use computers to address skills gaps and development; whereas in higher socioeconomic status communities, the computer was used for higher level cognitive development such as making presentations or analyzing information (Warschauer and Matuchniak 2010). Also related to low socioeconomic status is access to a personal computer at home and being mentored by a parent who is digitally literate (2010; Lai 2015). Low levels of internet access and situational barriers surface as a result of poverty and low income that exacerbate the issue that “Those already most disadvantaged are least likely to be connected” (Cannell 2017, 112). This “results in systemic issues of a lack of digital participation” (2017, 112) and a link between digital literacy and digital exclusion (Helsper and Eynon, 2013, cited in Cannell 2017) that reinforces inequities in higher education participation (Cannell 2017). Cannell suggests that students’ differing attitudes toward the internet should be taken into account as well as the “motivation of each individual as the starting point for providing help and support” (2017, 112).

The choice of technology is a barrier; technologies are not value-free (McLoughlin and Oliver 2000). The impact on the system is that the technology of choice “affects learner-teacher relations within the micro-culture of the classroom and macro-culture of the larger political arena, and promotes an independent, exploratory view of learning that may be alien to students who have experienced asymmetrical, teacher centred pedagogies” (McLoughlin and Oliver 2000, 60). For example, distributed communities of inquiry in Western culture are common, and these technologies may pose barriers for students who are culturally familiar with centralized and hierarchical systems of knowledge distribution (Lauzon 1999, cited in McLoughlin and Oliver 2000). Digital literacy varies with cultural background and changes how students engage with online technologies (Hannon and D’Netto 2019).

Constructivist activity is applied from shallow as opposed to deep constructivism (Scardamalia and Bereiter 2003, cited in Warschauer and Matuchniak 2010). The systemic issue for digital literacy is that “individual or collaborative student-centered work, such as writing newsletters or finding information on Web pages, was often carried out with very limited goals, such as the development of the most basic computer skills, rather than the achievement of deeper knowledge, understanding, or analysis through critical inquiry” (Warschauer and Matuchniak 2010, 199).

Evidence-Based Strategies

Our review of the literature and feedback from PSIs offered many valuable evidence-based strategies to better support students’ digital literacy. These are captured below:

- ✦ Digital inclusion places an emphasis on enhancing digital literacy. Support student and teacher digital literacy with technology forums, tutorship support, social networking sites, and virtual dialogues to address needs.
- ✦ Conduct needs assessments to help identify factors that contribute to success.
- ✦ Offer support on how to use hardware and software.
- ✦ Cater to connectivity level, particularly for those in rural and remote areas, as poor internet shifts access to information and communication technologies.
- ✦ Rather than designing a program with anytime, anywhere flexibility as its main objective (Carr 2002; Lagier 2003, 181), focus on the importance of building relationships, and create a sense of community. Social collaboration and interrelations enhance digital literacy and the use of information technology.
- ✦ Offer asynchronous alternatives for synchronous discussions to address barriers to digital literacy.
- ✦ Encourage faculty to make teaching content more attractive (e.g., a simple interface with intuitive navigation) and pace the course appropriately for students with diverse digital literacies.
- ✦ Design technologies as cognitive tools that transform, augment, and support social and cognitive engagement among learners from diverse backgrounds and geographical locations.
- ✦ Foster self-learning and self-organization to promote digital literacy.

Quality of Instruction and Resources

Barriers

Online learning can be more cognitively challenging than in-person class discussions (Tandy and Meacham 2009). This increases the attention needed on the quality of instruction and resources. Yet there is a lack of consensus about how to design online courses (Crouse, Rice and Mellard 2018) and guide quality instruction.

Students with learning disabilities have a number of “interpersonal barriers related to the particular disabilities such as difficulty with concentration, reading, time management, and auditory or visual deficits in processing information” (Tandy and Meacham 2009, 320). This amplifies the need for quality instruction and resources in online learning.

Rural and remote students in the study reported feelings of isolation that arose from the quality of instruction, and issues such as lack of timely and appropriate feedback (Parkes, Gregory, Fletcher, Adlington, and Gromik 2015) increase the concerns. The systemic issue is the unsuccessful rate of completion of study programs. A further impact on the system is attrition in online courses, which leads to inferior confidence and increased social isolation (Lee, Choi, and Kim 2013).

Despite off-campus schools aimed at enhancing quality of instruction, such as building relationships between online Indigenous students and lectures, the research indicates that school relationships do not adequately foster student-centred communities or translate into engaged dialogue between students, peers, and the teacher in the online environment (Stewart and Adlington 2010, cited in Parkes, Gregory, Fletcher, Adlington and Gromik 2015). Further, PSIs indicated that high-stakes exams are a barrier to online learning for Indigenous students and cause major anxiety.

Feedback from PSIs suggests that instructors should be mindful of students’ suggestions around the stigma attached to working in groups, especially when not all group members are on an equal playing field. This is especially true of domestic students who expect a level of basic skills and may appear to lack empathy for cultural differences, which further fosters bad mindsets in students, teachers, and faculty and impacts quality of instruction. Students reported that online group work was not well supported as it lacks communication structure, supervision for equal participation, and technologies for socialization, collaboration, and discussion.

Evidence-Based Strategies for Quality Instruction and Resources

Our review of the literature, PSI conversations, and student participants provided many valuable evidence-based strategies to better support the quality of instruction in online learning. These are captured below:

Class Preparation

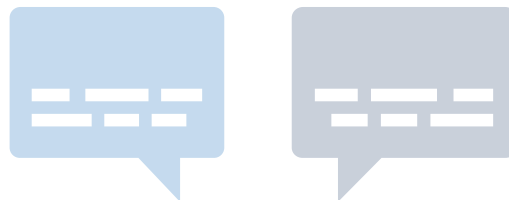
- ✦ Look at the design, captions, and postings of all course materials in advance, and think about accessibility ahead of time rather than in response to an individual situation.
- ✦ Provide information about how to access the online environment by personal email outside the learning environment.
- ✦ Humanize and introduce yourself, and explain the protocol of addressing and communicating, whether through email, phone, or fax.
- ✦ Provide a statement of equity for students in the online course.
- ✦ Explicitly express the ground rules for behavioural expectations.
- ✦ Outline student and staff expectations and responsibilities, such as the speed that queries will be answered and what type of feedback can be expected for submitted work.

Communications

- ✦ Communicate the availability of instructor/tutor and technical support to assist learning.
- ✦ Send emails to students who have not checked in for a while.
- ✦ Use scheduling tools to gather input for scheduling synchronous discussions.
- ✦ Use diverse communication methods—asynchronous and synchronous personalized emails and a range of ways to contact the instructor.
- ✦ Avoid excessive emails and posts to students to prevent overload and the need for constant online access.
- ✦ Solicit input from the students throughout the course.

Course Structure

- ✦ Be clear about pathways through the course, what expectations are, and the assessments.
- ✦ Align the environment, such as resources, learning outcomes, assessments, and activities, so that students are provided a coherent and planned learning experience.
- ✦ Navigation of the course demands a seamless structure with the elements built into the pages so students know exactly where they are, have reminders, and understand how new pages will open.
- ✦ Use an FAQ section to provide just-in-time access to relevant information.



Learning Support/Instruction

- ✦ Offer positive encouragement and ongoing motivation and guidance for learners, particularly Indigenous students, to help them achieve success.
- ✦ Monitor the discussion forums, offer timely feedback, acknowledge responses, and point out trending conversations.
- ✦ Use dynamic strategies that flex with student needs.
- ✦ Effective strategies reflect flexibility. We cannot stereotype and assume who equity seekers are. Instructors have to know their available tools and be responsive with alternatives.
- ✦ Offer English proficiency support services for international students.
- ✦ Focus on the relationship between student and teacher; it really is all about relationships.
- ✦ Quality instructors are patient, readily available, knowledgeable about their subject area, and effective in their methodology; instructors are widely seen as central to student success.
- ✦ Manage the course content, facilitate flow (for instance, by assigning TAs online hours to maintain a 24/7 presence), and provide support for technology.
- ✦ Use methods that enhance comprehension of content: PowerPoint slides, visual aids, videos, engagement with content, multiple discussion venues, and virtual hangouts.
- ✦ Support the improvement of time management skills, computer literacy, collaboration, independence, and work ethic.
- ✦ Coach, mentor, and share leadership.
- ✦ Model how you value diversity and cultural safety, and use affective and relational skills.
- ✦ Enhance support for students with disabilities by connecting with parents and assistive technologies.

Assessments/Feedback

- ✦ Assessment must be scaffolded.
- ✦ Be mindful that students with mental illness and social anxiety should not be forced to engage in some forms of assessment.
- ✦ Provide options for assessment, such as mind maps, songs and poems, blogs, websites, PowerPoint presentations, and technology.
- ✦ Allow flexibility in what students submit, the format, and when.
- ✦ Allow reflection on and revision of submissions.
- ✦ Offer samples of assessments completed by former students.



Activities/Course Content

- ✦ Conduct an informal needs assessment with students as an entry activity.
- ✦ Diversify the methods of student contribution; offer flexibility for multimedia presentations versus writing.
- ✦ Use text-to-podcast listening. This is useful for those who commute, are English as an additional language learners, have visual disabilities, and come from oral traditions.
- ✦ Engage multiple modes for interactivity and engagement, including wikis, audio/video responses, blogs, discussion boards, chat rooms, and virtual worlds.
- ✦ Design for flexibility to ensure that learning activities and tasks accommodate students' needs and perspectives.
- ✦ Include details about the structure of course discussions, including an outline, a calendar with deadlines, a description of the expectations for participation and how it will be assessed, and time estimates for engaging in discussion (Gronset and Bauder 2018).
- ✦ Engage students with learning by doing; for example, students lead the weekly discussion using instructor-assigned readings.

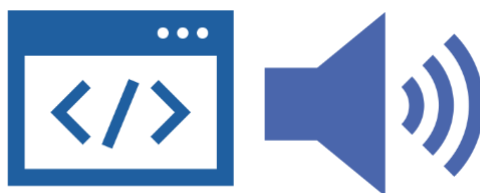
Social Engagement and Collaboration

- ✦ Use breakout rooms, and facilitate small group discussions and teamwork.
- ✦ Provide options for collaborative learning activities such as live meetings, phone meetings, asynchronous discussions, and chat.
- ✦ Optimize time spent in small groups and one-on-one instruction.
- ✦ Balance the cultural diversity in group work, and provide time for intercultural group learning processes.
- ✦ Raise student awareness of communication styles and expectations before they engage in diverse groups.



Quality of Resources

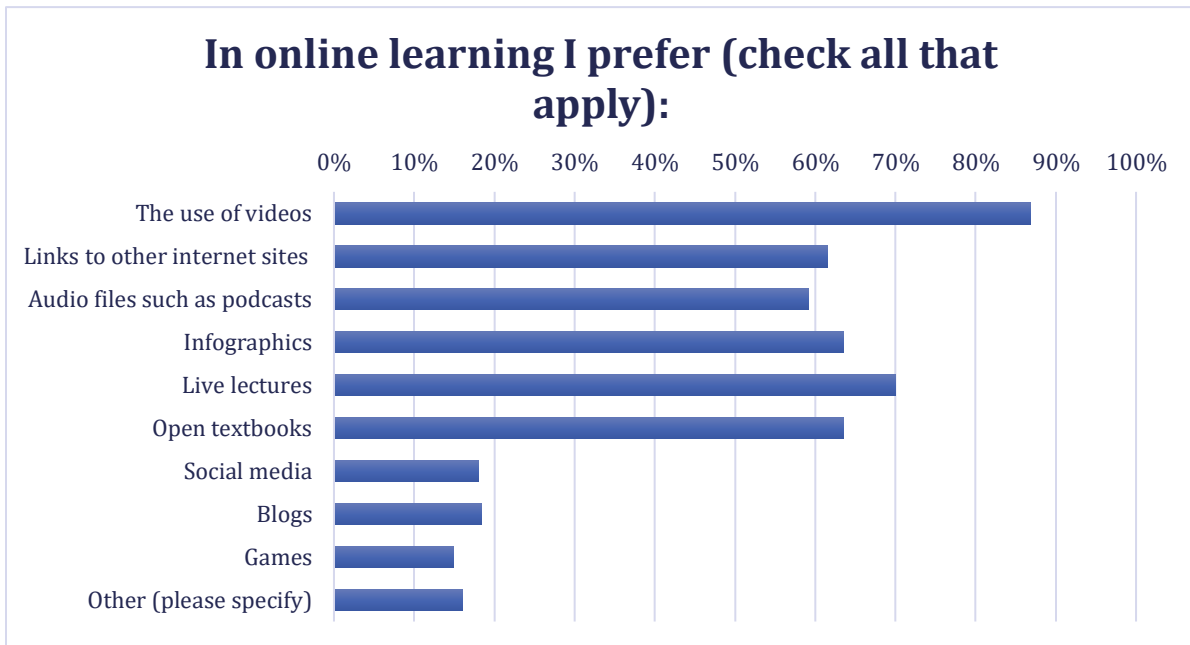
- ✚ Ensure videos are of high quality, and convey a personable message with a warm, friendly tone, humor and personality, and appropriate body gestures. Provide built-in language support, including transcripts, captions, subtitles, and translation. PowerPoint slides are common language-support strategy.
- ✚ Use learning resources that are multimodal and multimedia.
- ✚ Follow UDL guidelines, and design quality accessible resources that retain audience attention. See the *BCcampus Self-Publishing Guide: Accessibility, Diversity, and Inclusion* under “Notable Resources.” Some tips for creating accessible materials are as follows:
 - Use a simple interface with intuitive navigation.
 - Use simple language with no slang or jargon.
 - Present materials in different formats (e.g., Braille, large print, or audio).
 - Support text materials with graphics.
 - Level the playing field for accessibility by using various modes such as speech, text, and graphics.
 - Use templates constructed in HTML that meet accessibility standards.
 - For fonts, colours, graphics, and tables, use large sans serif fonts; avoid light backgrounds; create high contrast between text and background; use black font; use colour, but do not rely on it to convey information (many people are colour blind or colour-vision deficient); provide alternative text (e.g., attached to the graphic but hidden from view) for media such as graphics or charts; describe tables in narrative detail.
 - Use consistent icons to denote features and functionality.
- ✚ Work toward mobile-ready learning.
- ✚ Use HTML instead of PDF; PDF content is difficult to transpose to another platform.



Software and Educational Technologies to Improve the Quality of Instruction and Resources

- ✦ Screencast-O-Matic
- ✦ VideoScribe
- ✦ H5P
- ✦ Digital bulletin board tools, such as Padlet and VoiceThread, enable users to post their ideas as notes on a board or around a grid and can be used for brainstorming, sharing drafts, exploring terms, and curating student-generated concepts (Gronset and Bauder 2018).
- ✦ Virtual reality offers both a space for transformation and a tool for overcoming existing forms of inequality, including those caused by physical restraints of human capabilities. Virtual reality has potential as a form of social communication and cultural development (Rosenson 2013).
- ✦ Video production tools and digital storytelling to model themes and concepts
- ✦ Enhance engagement via webcam, web conferencing, VoiceThread, chat, virtual whiteboard, polling tools, and demonstrations on shared screens to enhance synchronous engagement.
- ✦ For students who are house bound or socially anxious, ProctorU is helpful although not available for every course.
- ✦ BlueJeans is a free institutional and accessibility web conferencing tool.

When asked about preferences for educational technologies, student participants preferred the following:



Others included Zoom, PowerPoint with audio lectures, discussion boards, and additional readings to download.

Pedagogy

Barriers

Some faculty and staff may be resistant to online learning if they lack familiarity with online technologies and effective online pedagogies (Moreira 2016). Teaching online courses is often off the side of the desk of a full-time position (Moreira 2016). Professional development for faculty and staff in online curricula and pedagogy varies, takes a significant amount of time, and is often perceived as lacking or insufficient (Bates 2018; Crouse, Rice and Mellard 2018; Moriera 2016). PSIs in our study reported no systematic professional development for online learning. Further, most instructors are not educated for online teaching and design; they are subject-matter experts but have limited online teaching skills. A problem exists in online learning in terms of professional knowledge and skills, and change could be facilitated in a positive institutional environment (Meskhi, Ponomareva and Ugnich 2019). Administrators need to create conditions for faculty professional development and introduce new policies about the innovations of online learning (Moriera 2016).

The frameworks for integrating technology in education are a barrier to the design of an online learning environment. For example, Technological Pedagogical Content Knowledge (TPACK) is a common framework for technology integration that “places inadequate attention on learner and context and, instead, underestimates the importance of being mindful of context and the manner that knowledge, understandings and beliefs inform practice” (Lewthwaite, Knight and Lenoy, 2015, 82). The systemic issue is that if TPACK is the primary model educators use, it is possible that the “understanding of learner and their context – academically, geographically, linguistically and politically – and an awareness of the roles teachers adopt in response to this understanding” (Lewthwaite, Knight and Lenoy, 2015, 82) is of secondary importance to the triadic relationship of technology, pedagogy, and content. Further, “non-traditional students’ educational success in the online learning environment can only be better supported through an understanding of context” (Lewthwaite, Knight and Lenoy, 2015, 82).

The design and delivery of online courses is influenced by teachers’ epistemological beliefs and their role as educators. For example, if a teacher sees their role as knowledge disseminator, they are more likely to focus on content delivery (Lewthwaite, Knight and Lenoy 2015). In other words, we teach the way we were taught (Harris and Woods 2020). Further, faculty perceptions of online courses lean toward evaluating them as less prestigious than face-to-face classes (Moreira 2016).

A gap exists between the motivation (i.e., revenue generation, enrollment outreach) for offering online learning and the investment to ensure faculty and course development meet the needs of online learners (Bates 2018; Goold, Craig and Coldwell 2007). For example, institutions may offer MOOCs for other reasons beyond teaching and learning, such as expanding reach to nontraditional students or increasing school reputation and brand (Phan 2018; Phirangee and Malec 2017).

Our interpretations of barriers to pedagogy in online learning resulted in three distinct themes: equity mindedness, cultural affirmation, and social engagement. These barriers and evidence-based strategies to overcome them are discussed below.

Equity Mindedness

Barriers

Equity mindedness requires that institutions and online learning instructors recognize the ways that systemic inequities disadvantage people who experience marginalization (Harris and Woods 2020). Some of the systemic challenges include racial microaggressions, housing and food insecurities, and the stereotypes that such students come from families or communities that do not value education (Harris and Woods 2020). Online learning aims to break down barriers to accessing education (Cowher 2014), yet issues arise. Although online learning can “open the door to a wealth of creative possibilities... [and] for the minority student, online and distributed learning in its myriad forms offers an opportunity to attain previously inaccessible education while addressing the unique needs of underrepresented, isolated, frequently marginalized cultures” (Cowherd 2014, 432). Barriers and a variety of unique challenges (Cowherd 2014) such as sociocultural differences exist for equity-seeking students.

Some online learning does not differentiate or recognize ethnocultural differences, particularly of marginalized people. The systemic issue is the way the bias of the dominant educational culture (typically Eurocentric and Western dominant in ethics, views, pedagogy, and content) further marginalizes diversity. This is due to “enculturation in languages, ethical perspectives, pedagogies and technologies” (Morong and DesBiens 2016, 478) that differ for equity-seeking groups.

Online learning design has commonly come from a deficit approach (Mcloughlin 2001). PSIs in our study reported that students feel labeled coming into the online learning environment, as they typically introduce themselves as a learner with a deficit or from an equity-seeking group. Without consistently orienting faculty to this barrier, the learners’ disengagement is greater. This is evident in the “stereotyping of international students’ capacity for learning and academic achievement” (Chalmers and Volet 1997; Volet and Ang 1998, cited in Mcloughlin 2001, 17). The result is that “international students are often perceived to be too teacher dependent, lacking in independent study skills, and tending to adopt rote learning strategies” (Mcloughlin 2001, 17). We need to let go of deficit thinking and call on students’ cultural backgrounds in a positive way (Pidgeon 2008).

PSIs in our study confirmed that online environments are not often designed for diverse learners and retrofitted for accommodations (Tandy and Meacham, 2009). No explicit laws or policies require institutions to build accessible online courses, which contributes to a lack of awareness of inclusive online course designs (Tandy and Meacham 2009).

Evidence-Based Strategies

- ✦ Proactively, and with positivity, continuously reach out to all students to make sure no one is underserved (Harris and Woods 2020).
- ✦ Critically reflect on your roles and responsibilities in addressing inequities; reject socialized deficit ideas about student success (Harris and Woods 2020).
- ✦ Give students the tools to engage with equity issues within the context of the course, and stay present in the dialogue (Harris and Woods 2020).
- ✦ Diversity is complex, and intersectionality needs to be addressed to engage diverse learners in online environments (Goold, Craig, and Coldwell 2007) in terms of course content, design, delivery, and faculty professional development (Crouse, Rice and Mellard 2018).
- ✦ Designing for effective online learning for diverse audiences means instructors need to design for user experience and activities, which is a shift from instructional inputs (Morong and DesBiens 2016).
- ✦ Foster equity by seeking awareness of students' social obligations, geographical location, literacy and linguistic capabilities, limited prior tertiary experience, and sociocultural and political backgrounds (Lewthwaite, Knight and Lenoy 2015).
- ✦ Facilitate emotional connections by creating spaces for casual, personal, learner-directed conversations.
- ✦ Address sociocultural differences in online learning environments to create a sense of belonging for all students (Cowherd 2014).
- ✦ Address equity and cultural aspects of learning for balanced content in relation to culture, ethnicity, race, and other dimensions of diversity.
- ✦ Use inclusive language to promote an atmosphere of respect, equity, and incorporation of relevant societal and cultural groups.
- ✦ Ensure that online courses address cultural safety, establish community norms, clarify how communication will happen, use appropriate language, and outline how feedback is shared (Harris and Woods 2020; Morong and DesBiens 2016).
- ✦ Consider the sociocultural aspects associated with the student population, and be aware of effective teaching strategies geared toward underrepresented ethnic populations in online learning (Cowherd 2014).
- ✦ Monitor online discussions for microaggressions (Harris and Woods 2020).
- ✦ Use flexible learning environments that allow learners to organize their own learning and develop educational pathways based on their unique individual knowledge, experiences, interests, and learning needs (Downes 2006; Scannell 2011). Be flexible with scheduling, time and space, choices, and learner input into learning goals, activities, materials, and methods as key components in equity mindedness.
- ✦ Use methods that are transformative and emancipatory and educate the whole learner.
- ✦ UDL principles offer an educational framework for instructors to design accessible and inclusive learning experiences that improve teaching and learning for all people (Meyer, Rose and Gordon 2014). UDL acknowledges diversity of learners and encourages instructors to use multiple pathways for engagement, representation, and expression; promotes equal opportunities and inclusive education for all learners' accessibility; ensures collaboration of students with disabilities and with peers and teachers; consolidates the most optimal utilization of available resources and services required for online and inclusive learning.
- ✦ Consider UDL as an alternative to assistive technology; UDL lessens psychological impact and the benefit of locating the handicap as external to the person, which may have been erected by the learning environment. In this way, the disability is "normalized" and becomes an "ergonomic situation" (Tobias 2003)
- ✦ Accessible and responsive design accounts for an uneven technological playing field and demonstrates flexible approaches that recognize geographical, socioeconomic, and political diversity (Phirangee and Malec 2017; Morong and DesBiens 2016).

Cultural Affirmation

Barriers

Online learning enrollment is on the rise with increasing diversity, which presents challenges for instructional designers to keep up with volume and non-heterogeneity of student learners (Casarez and Shipley 2016; Warschauer and Matuchniak 2010). The design of instruction is not culturally neutral and is “based on the particular epistemologies, learning theories and goal orientations of the designers themselves” (McLoughlin and Oliver 2000, 58). The systemic issue is that online learning is a product of a particular culture that influences the “modes of communication, styles of learning and participation at both micro and macro levels” (2000, 60).

Challenges to addressing diversity in online learning have not been well documented (Hannon and D’Netto 2019). Some researchers have studied students from collectivist cultures that value high context and who find indirect communication challenging, which increases tensions in online engagement as the design curriculum is Eurocentric. Further, students from international pathways have indicated that online team project work (Morong and DesBiens 2016; Goold, Craig and Coldwell 2007; Olesova, Yang and Richardson 2011) is challenging for various reasons. For example, lack of confidence in English proficiency hinders engagement in online discussions (Olesova, Yang and Richardson 2011). The language used in the course needs to be clear, especially with respect to expectations and instructions (McLoughlin 2001). English as an additional language learners do better with learning design that is more visually based (Williams 2019).

Cross-cultural challenges of global networked learning (McLoughlin 2001) also present a barrier to online learning despite “web tools such as real-time text-based conferencing, asynchronous dialogue and chat rooms, collaborative online writing and dynamic hyperlinks to resources beyond those prescribed offer students unlimited access to information, peer dialogue and support” (Oliver and McLoughlin, 1999, cited in McLoughlin 2001, 8). The systemic issue is that students from international pathways may experience three kinds of problems: sociocultural adjustment, language issues, and teaching/learning issues related to different expectations and perspectives of learning (McLoughlin 2001, 17).

Faculty positionality and level of intercultural awareness in their pedagogical approaches can influence learners. “Primarily white institutions need to be aware of the social and emotional needs of their minority students” and the likelihood of these students experiencing discrimination (Cowherd 2014, 160). Unless the curriculum itself incorporates and demonstrates the value of diversity, students’ diversity will not add to internationalization efforts (Goold, Craig and Coldwell 2007).

Evidence-Based Strategies

- ✦ Enact culturally responsive design that supports intercultural learning and involves the development of knowledge of diverse cultural worldviews, including your own; attitudes of respect, openness, and curiosity; and critical reflection, listening, empathy, and other relational skills (Williams 2019).
- ✦ “Culture pervades learning, and in designing instructional environments there needs to be serious debate about issues concerning the social and cultural dimensions of task design, communication channels and structuring of information if the needs of culturally diverse learners are to be met” (McLoughlin, Catherine and Oliver 2000, 9).
- ✦ Be aware of sociocultural elements of the student population: “who its students are, what the needs of those students are, and what steps to success need to be provided, and an institutional commitment to continually assess and improve those steps to success” (Coplen et al. 1994, 10).
- ✦ Include diverse cultural representations and perspectives. Invite culturally relevant contributions, and address diverse cultural interests, needs, and preferences.
- ✦ Use learning circles composed of several groups of distributed learners who represent different cultural perspectives; lead students to cross-cultural understandings and appreciation of real-world events through the eyes of peers and experts in other countries (McLoughlin 2001).
- ✦ Ensure that student roles move beyond passive recipients of content to active, dynamic participants who engage in communication and reflection to develop a repertoire of cross-cultural skills and competencies.
- ✦ Enable culturally responsive methods that flip the online classroom by creating an environment that acknowledges, celebrates, and builds on the cultural capital that learners and teachers bring to the class. By actively engaging learners in both the construction and teaching of the online class, culturally responsive methods guide students as they create their own ways of learning. Students move from being passive participants in their education to becoming co-constructors and responsible for developing self-directed learning paths as they navigate the educational system (Woodley, Hernandez, Parra and Negash 2017).
- ✦ Indigenous educators call for holistic models, such as Kirkness and Barnhardt’s (2001) 4Rs or Pidgeon’s (2016) Indigenous Wholistic Framework, to be employed for Indigenous students as important considerations in online curriculum and pedagogy (Morong and DesBiens 2016).
- ✦ Use intercultural learning models (include affective learning, relational skills, and cultural knowledge building), critical pedagogy, and intentional design of experiential learning with “others” that carry through the course activities (Garson and Odgers 2006).
- ✦ Set up intercultural dialogues about learning to increase metacognitive awareness and sensitivity among learners to their own culture and approaches to learning (Jin and Cortazzi 1998).
- ✦ Ensure course design aims to connect learners to their own communities, prior learning experiences and expertise, perspectives, and communities and allows students to share images from their spaces, being mindful of images that may be triggering.
- ✦ Think about non-native English speakers in the organization of materials to include headings, section topics that help comprehension, limited content per section and page, and information in downloadable PDF format.
- ✦ Be flexible in course design. Allow options for assignment submissions and methods of responses in online discussions (e.g., sketches, voice, mind-maps).

Social Engagement

Barriers

A lack of social interaction was the most severe barrier to online learning according to a study by Muilenburg and Berge in 2004 (cited in Olesova, Yang and Richardson 2011). Although online learners thrive on interaction and student collaboration, students can view the asynchronicity of some courses as “forced artificial communication” (Gronseth and Bauder 2018, 1069). Students who do not have access to popular social technologies are not able to maintain distance friendships or global events. Research findings suggest that synchronous versus asynchronous learning, based on the desire for consistent opportunities to connect with others, was identified as a strong preference (Rao and Guili 2010; Philpott, Sharpe and Neville 2009).

Findings in the literature illustrate that online learning can increase a sense of isolation, so it is important to “understand how online communication, disconnected from a physical presence, impacts learning and how this social context may contribute to the sense of isolation felt by many more distance learners” (Delahunty, Verenikina and Jones 2014, 244).

In traditional pedagogy the act of thinking together in a classroom builds a sense of community and connectedness, whereas in asynchronous learning nonverbal cues such as tone and gestures are missing and can impact socioemotional learning and make discussions more task-oriented versus relationship-oriented (Phirangee and Malec 2017; Delahunty, Verenikina and Jones 2014). The lack of social cues can lead to unclear impressions of other students in the course, which can allow for “biased interpretations and less self-reflective communication” (Phirangee and Malec 2017, 162). Often the framing of the digital divide is centred on digital solutions such as computers and the internet, but that neglects what is needed in terms of social inclusion (Warschauer and Matuchniak 2010).

Social engagement in online learning is contingent on students who interact versus students who participate. “Interaction, from a sociocultural perspective, refers to both the individual and collective transformation of knowledge occurring through dialogic exchanges between people” (Vygotsky 1978, cited in Delahunty, Verenikina and Jones 2014, 245).

Although mandatory discussions can foster interaction, most students are concerned with “saving face,” which can impact learning aims (Delahunty, Verenikina and Jones 2014). Trying different platforms for interaction such as social media can increase interaction but also lead to cross-cultural and privacy issues (Phan 2018). Cultural tendencies, such as individualism, can negatively impact interaction and collaboration (Cannell and MacIntyre 2017; Olesova, Yang and Richardson 2011).

Evidence-Based Strategies

- ✦ It is not sufficient to make content freely available; it also requires careful design of a pedagogical framework that acknowledges the social context of learners and provides suggestions for study environments that learners can thrive in and that maximize opportunities for peer support and social interaction (Cannell 2017).
- ✦ Create community by focusing on common learning goals, working together, sharing ideas, and appreciating differences (McLoughlin 1999a; McLoughlin and Oliver 2000).
- ✦ Support the *skills* to effectively engage in online collaboration by nurturing learner relationships; teaching scaffolding skills; setting only relevant, authentic teamwork tasks; providing sufficient learning time; and individualizing assessment components.
- ✦ Consider Salmon's (2000) Five Stage Model for online learning moderation, which provides foundational guidance on scaffolding activities to engage, support, and socialize students in academic online learning communities.
- ✦ Encourage social presence through a friendly atmosphere to reduce isolation; use social networks, blogs, and online social clubs to support students' interactions, socializations, and connections.
- ✦ Offer options for collaborative learning activities such as live meetings, phone calls, asynchronous discussions, and chats; consider gathering by language background, geographic region, common interests.
- ✦ Employ a community of inquiry approach (Lipman 1991) based on social constructivist principles of cognitive apprenticeship, common goals, shared inquiry, and peer learning while being mindful of cultural differences.
- ✦ Enable students to work in groups to present diverse views and challenge each other's perspectives to stimulate debate and critical analysis of ideas (Bonk and King 1998); mix student groups to foster diversity.
- ✦ Use collaborative concept mapping tools, such as Lucidchart, MindMeister, and Coggle, to facilitate co-construction of knowledge (Gronset and Bauder 2018).

NOTABLE RESOURCES

- ✚ BCcampus Open Education Accessibility Toolkit: <https://opentextbc.ca/accessibilitytoolkit>
- ✚ BCcampus Self-Publishing Guide: Accessibility, Diversity, and Inclusion: <https://bccampus.ca/2018/10/16/self-publishing-guide-accessibility-diversity-and-inclusion>
- ✚ Inclusive Design Webinar Series: <https://bccampus.ca/2019/03/12/inclusive-design-webinar-series>
- ✚ UDL guidelines, CAST: http://udlguidelines.cast.org/?utm_medium=web&utm_campaign=none&utm_source=udlcenter&utm_content=site-banner
- ✚ UDL framework: <https://www.inclusive.tki.org.nz/guides/universal-design-for-learning/udl-framework>
- ✚ Guide to Blended Learning http://oasis.col.org/bitstream/handle/11599/3095/2018_Cleveland-Innes-Wilton_Guide-to-Blended-Learning.pdf?sequence=1&isAllowed=y
- ✚ Inclusive design: <https://www.microsoft.com/design/inclusive/>
- ✚ Accessibility: <https://www.w3.org/standards/webdesign/accessibility>
- ✚ Five Ways to Build Community in Online Classrooms: <https://www.facultyfocus.com/articles/online-education/five-ways-to-build-community-in-online-classrooms>
- ✚ Motivational Theory and Design: <https://moodle.une.edu.au/mod/page/view.php?id=810955>
- ✚ How to Develop a Sense of Presence in Online and F2F Courses with Social Media: <https://onlinelearninginsights.wordpress.com/tag/community-of-inquiry-model>
- ✚ Online learning welcomes increased numbers of Canadian students: <https://bccampus.ca/2019/01/25/online-learning-welcomes-increased-numbers-of-canadian-students>
- ✚ *Employing Equity-Minded and Culturally-Affirming Teaching Practices in Virtual Learning Communities*: https://www.youtube.com/watch?v=aMrf_MC5COk&feature=youtu.be
- ✚ *An Introduction to Invitational Theory*: https://www.invitationaleducation.org/wp-content/uploads/2019/04/art_intro_to_invitational_theory-1.pdf
- ✚ read&write: Literacy software that lets everyone read, write, and express themselves more confidently and independently: <https://www.texthelp.com/en-us/products/read-write/>
- ✚ Affiliation of Multicultural Societies: Free webinars for frontline workers in the area of newcomers/refugees
- ✚ Friend 2 Friend Social Learning Society: Awareness webinars
- ✚ Magna: Faculty focus for online learning

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