



LESSONS LEARNED IN HIGHER EDUCATION DURING COVID-19 AND BEYOND

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Executive Summary

Context

Higher education was impacted by the switch to emergency remote teaching (ERT), a transition necessary to continue instruction while assuring safety for educators and students due to the COVID-19 pandemic. Significantly, educators had to modify their teaching methods while students had to adapt their learning strategies in response to this abrupt change; more specifically, educators and students had to learn how to communicate solely online and use online learning platforms. At UCalgary, these disruptions and shifts caused us to ask, “What lessons have we learned through teaching and learning during the global pandemic and where do we go from here?”

To capture these lessons learned, a team of educators, leaders, and students explored our shared experiences at UCalgary and beyond. Between June 2022 and January 2023, we conducted an environmental scan, exploratory literature review, and campus community conversations to gather and document the pandemic’s impact on teaching and learning in higher education.

Approach

To capture the lessons learned throughout the pandemic, the team engaged in a three-pronged approach: (a) environmental scan, (b) exploratory literature review, and (c) campus community conversations. We conducted these knowledge-gathering initiatives between June 2022 and January 2023, and they resulted in a multifaceted understanding of how teaching and learning were affected during the pandemic. They provided insights into how these lessons could be integrated into future decision-making at UCalgary and beyond. This initiative was a quality improvement process intended for internal reporting (University of Calgary, 2023).

Findings

The findings from each phase of lesson gathering provided unique insight into global, national, and local experiences and perspectives about the impact of the pandemic on higher education. We found three umbrella themes for future consideration: (a) teaching and learning, (b) EDIA and decision-making, and (c) institutional practices, analysis, and infrastructure.

Teaching and Learning

Flexibility and workload considerations go together. While students have noted an increased expectation for flexibility from their instructors, educators have been asked to do more with increasingly less, which has contributed to increased rates of

burnout (Alford et al., 2021). Teaching and learning supports and resources were consistently identified by educators as crucial for helping balance workload and meet expectations for flexibility.

Importance of EDIA in Decision-Making and Planning

Issues of equity, diversity, inclusion, and accessibility (EDIA) directly affected faculty and students' experiences throughout the pandemic. There remains a gap between what we knew pre-pandemic and what we need post-pandemic. In addition, it is important to consider questions such as, how has the pandemic affected mental health and wellbeing? How did the pandemic expose and exacerbate longstanding health and wellbeing issues and inequities experienced by members of equity-seeking groups? What strategies, approaches, or frameworks have proven effective in supporting both students' well-being and faculty well-being and capacity?

Role of Institutional Practices, Analysis, and Infrastructure

With flexibility being important to faculty and students throughout the pandemic, it may be helpful for institutions to embed flexible teaching and learning options into policies, programs, and infrastructural decisions. Critical reflection on our experiences from teaching and learning in higher education during the pandemic could indicate an institution's readiness for the future.

Looking Forward

As of May 5, 2023, the World Health Organization declared the end of the Covid-19 global health emergency (World Health Organization, 2023). This declaration moved us closer to a post-pandemic reality that will involve healing, mourning, re-normalizing, and change. What we have learned in this study is that what was considered normal pre-pandemic may not be typical, or achievable, post-pandemic. As we look forward to the potential of a post-pandemic institutional landscape, perhaps we can ponder the following questions:

- **Adaptability**
How can adaptability and resilience to disruptions be fostered in the future by providing sustained policy, infrastructural, technological, and financial support for the teaching and learning community?
- **Flexibility**
How can flexibility be embedded into teaching and learning design and decision-making to support agile, future-focused programs and courses?
- **Wellbeing**
How could institutional support for mental health and well-being be

strengthened to address the systemic and structural challenges to wellbeing?

- **Equity, diversity, inclusion, and accessibility**
How could institutions take steps to reduce systemic and structural barriers to equity, diversity, inclusion, and accessibility to improve access to higher education for all students?
- **Planning**
What types of guidelines, frameworks, or processes could be developed regarding blended, online, and remote learning to support faculties and departments as they make decisions about programming and modality of course delivery?

While these questions are not exhaustive, we hope they may be a starting point for conversations about what post-pandemic teaching and learning looks like in diverse places and spaces.

Context

Higher education was impacted by the switch to emergency remote teaching (ERT) in March 2020, a transition necessary to continue instruction while assuring safety for educators and students due to the COVID-19 pandemic. Significantly, educators had to modify their teaching methods while students had to adapt their learning strategies in response to this abrupt change; more specifically, educators and students had to learn how to communicate solely online and use online learning platforms. At UCalgary, these disruptions and shifts caused us to ask, “What lessons have we learned through teaching and learning during the global pandemic and where do we go from here?”

To capture these lessons learned, a team of educators, leaders, and students explored our shared experiences at UCalgary and beyond. Between June 2022 and January 2023, we conducted an environmental scan, exploratory literature review, and campus community conversations to gather and document the pandemic’s impact on teaching and learning in higher education. Unsurprisingly, we found that the stress and strain of living, working, and learning through a global pandemic affected administrators, educators, and students. However, we also found that there was hope that institutions would embrace some of the shifts during the pandemic, specifically related to flexibility, supports and resources, and diverse modalities. In this report, we summarize the information that we gathered in three categories: (a) what we learned, (b) what was missing, and (c) what we might look at moving forward. Full reports for each phase of the project will be available on the Flanagan Foundation Initiative [landing page](#).

When aggregated and reviewed, the findings from each phase of this initiative provided both a hopeful and conscientious reflection on what teaching and learning could look like as we move forward from the pandemic. The opportunities we have as an institution, as departments and faculties, as individual faculty and staff, and as students, are innumerable. We found great opportunity in our collective ability to critically reflect upon our experiences over the last three years, as well as envision a future for post-secondary education.

This work was part of the Flanagan Foundation Initiative, a three-year project to catalyze blended and online learning at the University of Calgary. The findings from this report may be used to further the initiative’s goals and inform further dialogue and story-gathering related to lessons learned from teaching and learning during the global pandemic. We hope this report is a catalyst for conversations and visioning to support teaching and learning that builds on the rich lessons we have learned over the last three years.

Approach

To capture the lessons learned throughout the pandemic, the team engaged in a three-pronged approach: (a) environmental scan, (b) exploratory literature review, and (c) campus community conversations. We conducted these knowledge-gathering initiatives between June 2022 and January 2023, and they resulted in a multifaceted understanding of how teaching and learning were affected during the pandemic. They provided insights into how these lessons could be integrated into future decision-making at UCalgary and beyond. This initiative was a quality improvement process intended for internal reporting (University of Calgary, 2023). This section outlines how we completed each stage of this process.

The Team

This initiative was a collaboration between the Vice Provost Teaching and Learning, the Senior Director of the Taylor Institute for Teaching and Learning (TI), two Educational Leaders in Residence, an Educational Development Consultant, and two graduate research assistants as part of the [Flanagan Foundation Initiative](#). This team provided input and consultation throughout the process, while four colleagues led knowledge gathering, analysis, and reporting.

Environmental Scan

Between June and August 2022, we conducted an environmental scan using publicly available information from the U15 Group of Canadian Research Universities to learn of the impacts of an ERT in postsecondary education during the global pandemic. Information sources included university-related newsletters, blogs, podcasts, surveys, and reports. We also drew on the lessons learned in the international context from published articles and reports to inform gaps and potential opportunities in the Canadian postsecondary context.

Exploratory Literature Review

We conducted an exploratory literature review between September 2022 and January 2023 to map peer-reviewed literature on teaching and learning published during the pandemic (2020 to 2022). This process identified gaps and opportunities for further research on transforming teaching and learning in a post-pandemic world (Munn et al., 2018). We adapted the Joanna Briggs Institute scoping review protocol for this study, comprising three steps: (a) the search strategy, (b) evidence screening and selection, and (c) data extraction (Peters et al., 2021). A total of 1297 publications were imported into Covidence for review. Covidence removed 135 duplicates during the import, leaving 837 publications for screening. Upon completing the screening, we included 39 articles for full-text data extraction.

Community Conversations

Between November 2022 and January 2023, we shared the lessons from the environmental scan with 135 faculty, staff, and students from nine faculties and units across the University of Calgary in small group settings over ZOOM. Participants were invited to reflect and provide insight on the following questions:

- What have you seen/experienced in teaching and learning in your local context?
- What aspects of these experiences resonate with you?
- What aspects of these experiences do you want to leave behind?
- What would you like to know about emerging lessons learned in teaching and learning through COVID-19 and beyond?
- How could the University of Calgary strengthen teaching and learning, given what we have learned these last few years?

Participants were informed that their comments on the Padlet would be anonymized and used for internal reporting to support ongoing learning and quality improvement practices at UCalgary (University of Calgary, 2023).

Analysis

All information collected during this initiative was qualitative. We analyzed the information gathered in each initiative phase using thematic content analysis, a multistep analytic process through which we reviewed the collected content, identified patterns, clustered similar information, and articulated themes that captured shared concepts. To further refine our analysis of the community conversations, we utilized word clouds to identify words that were most frequently shared on the Padlet. This additional content analysis resulted in a visual representation of the most shared concepts within those conversations. In the final analysis stage, we analyzed the aggregate findings to identify the relationships between the information collected in each phase, resulting in an integrated set of findings that we report on separately.

Brief Findings

In this section, we present key learnings from each initiative phase. We have highlighted these learnings in **Table 1** and provide context for each in the following pages.

Table 1: Summary of key learnings

Learned	Missing	Forward
Environmental scan		
<ul style="list-style-type: none"> Flexibility Increased workload Socio-economic factors Central teaching and learning supports Little systematic reporting Focus on undergraduate students and course instructors 	<ul style="list-style-type: none"> Equity, Diversity, Inclusion and Accessibility (EDIA) considerations and balancing work, home life, teaching and learning Limited mental health discussion Improving instructional practices Changes in learning 	<ul style="list-style-type: none"> Importance of infrastructure and policy Shifts in attitude and perception Making technology accessible (Re)defining “normal” Room for improvement in student experience
Exploratory review		
<ul style="list-style-type: none"> Importance of flexibility Technology integration and digital infrastructure Support for mental health and wellbeing Professional development and training 	<ul style="list-style-type: none"> Equity and accessibility 	<ul style="list-style-type: none"> Blended learning Flexibility in teaching and learning Creation of clear policy and analysis Assessment strategies and evaluation
Community conversations		
<ul style="list-style-type: none"> Teaching practices Learning experiences The importance of community Accessibility Supports and resources Assessments 	<ul style="list-style-type: none"> Policies, guidelines, and decision-making frameworks Supports for mental health and wellbeing 	<ul style="list-style-type: none"> Future-focused delivery Improvements to infrastructure

Environmental Scan

Between June and August 2022, we conducted an environmental scan using publicly available information from the U15 Group of Canadian Research Universities to learn about the impacts of ERT in postsecondary education during the global pandemic. Information sources included university-related newsletters, blogs, podcasts, surveys, and reports. We also drew on the lessons learned in the international context from published articles and reports to inform gaps and potential opportunities in the Canadian postsecondary context.

In this scan, we collected 21 resources from the Canadian U15 and international reports (see Table 2). Most of the information was published in 2021 (n=9), followed by 2022 (n=7), and 2020 (n=5). While nearly one-third of the resources focused on faculty experiences (n=6), almost three-quarters of the reports focused on faculty and student experiences (n=5), undergraduate students (n=5), and institutional stakeholders (n=5). Finally, more than half of the resources were newsletters (n=6) and reports (n=6), followed by blogs (n=4), podcasts (n=2), published articles (n=2), and surveys (n=1).

Table 2: Environmental Scan Resource Characteristics

Characteristic	N	%
Region		
Canada/North America	17	81%
International	4	19%
Year Published		
2022	9	43%
2021	6	29%
2020	5	24%
Demographic		
Faculty	6	29%
Students	5	24%

Faculty and students	5	24%
Institutional	5	24%
Type of Publication		
Blog	4	19%
Newsletter	6	29%
Podcast	2	10%
Published article	2	10%
Report	6	29%
Survey	1	5%

We identified themes related to lessons learned from ERT and learning during the pandemic, five themes related to lessons learned in the international context, three notable gaps in the evidence collected, and four areas for future consideration. For a thematic review of these resources, please see Appendix A.

What We Learned

We identified seven key themes related to lessons learned from ERT and learning during the global pandemic:

Flexibility

Remote learning had benefits for students, such as offering flexible grading, asynchronous modules, open book exams and multiple learning opportunities. Students reported challenges regarding increased workload, lack of privacy (e.g., when webcams were necessary), accessibility, and mental health impacts associated more generally with the pandemic. Flexible grading options and multiple learning opportunities allowed instructors to accommodate individual student's needs (Houlden and Veletsianos, 2022; Layne, 2020; Napierala et al., 2022; Novotny et al, 2022; Samuel, 2021; Sears, 2022).

Increased Workload

Remote teaching was sometimes used as an opportunity for instructors to explore other pedagogical approaches (Block, 2021; Boklaschuk, 2020; George, 2020; Joudrey, 2021; Samuel, 2021b; Stuart, 2022; Wilson, 2021). Some instructors resorted to a more direct transfer of their face-to-face teaching approaches and

materials to an online context. Regardless, course instructors reported substantial increases in workload because of the pivot to remote teaching. Students mirrored the feeling of being overworked, especially from an increased number of assignments and assessments (Houlden & Veletsianos, 2022; Learpin, 2021; Taylor & Bastien, 2017; UNESCO, 2022; University of Ottawa, 2020; University of Calgary, 2020).

Socio-Economic Factors

Due to the costs associated with buying computers, tablets, and other equipment necessary for online learning, access to technology was often discussed as being related to socio-economic factors (Goegan et al, 2022; Napriela et al., 2022; Houlden & Veletsianos, 2022; Abdrasheva et al, 2022). Lack of access to these tools often degraded educational experiences and compromised students' ability to participate fully in their education.

Central Teaching and Learning Supports

Teaching and learning supports were adjusted at most postsecondary institutions through various workshops, seminars, and Centres for Teaching and Learning, whose role and mandate were often revised to support remote and online teaching and learning (Nafie et al, 2020). Many educators and postsecondary leaders also relied on peer-to-peer support and participated in round table discussions, community discussions, and networks at both an institutional and local level (University of Ottawa, 2020; University of Calgary, 2020; Marin et al., 2022).

Little Systematic Reporting

Universities across Canada have highlighted success stories and discussed the positive and negative impacts of Covid-19 on teaching and learning at various meetings, webinars, and conferences. However, little systematic documentation exists to capture the lessons learned or the outlook post pandemic, except the University of British Columbia, "Beyond COVID Report" (UBC, 2021). Since completing this environmental scan, UBC has published an action plan to implement recommendations from the original "Beyond Covid Report." That report is available at this [link](#) (UBC, 2022).

Focus on Undergraduate Students and Course Instructors

Sources of information were from surveys, working groups and interviews, published in peer-reviewed articles and institutional newsletters that focused primarily on the experiences of faculty and undergraduate students (Napriela et. al., 2022; Houlden & Veletsianos, 2022). The student learning experience has been significantly impacted by the transition to ERT, particularly in terms of student

understanding, increased curiosity, engagement with course material, changes in workload, and peer interactions (George, 2020; Samuel, 2021a).

What is Missing

We identified four key gaps in the lessons learned data that has been made available within the Canadian teaching and learning context:

Negotiating Work, Study, and Home Arrangements

While most educators and students were working and learning remotely throughout the pandemic, there was little information about how people negotiated their work, study, and home arrangements. It may be helpful to explore how these arrangements were modified or created barriers to participating fully in learning contexts, particularly through the lens of equity, diversity, inclusion, and accessibility, and pedagogical aims.

Little Mental Health Discussion

Little information about mental health was in the U15 documents reviewed in the initial environmental scan. The information about mental health was discussed as a secondary or tertiary aspect of teaching and learning during the pandemic rather than the primary focus. This absence of ongoing data (after 2020) may indicate that reporting focused broadly on perceived successes and challenges related to teaching and learning, rather than delving into the known impacts of Covid-19 on mental health.

Improving Instructional Practices

More information is needed on how teaching and learning will look when most courses have reverted to face-to-face teaching, including how institutions will build/add/modify their pre-Covid-19 practices to integrate their Covid-19 experiences.

International Context of ERT and Learning

We identified an additional five themes in the international context, which are drawn from published articles and the UNESCO (2022), NSSE (2021), Moore et al. (2021), and Educause (2021) reports.

Importance of Infrastructure and Policy

The ease with which institutions responded to ERT was primarily determined by the institution's preparedness to offer distance/online education prior to the pandemic and the availability and access to technology (Abdrasheva et al., 2022; Moore et al, 2021).

Shifts in Attitude and Perception

Course instructors showed increased willingness to include technology in their teaching practices because of the pandemic. Surveys of first-year postsecondary students in Ontario, Canada, also indicated a shift in their preference for the modality of course offerings, with 56% wanting hybrid courses and programs (Napierala et. al., 2022; Abdrasheva et al., 2022).

Making Technology Accessible

Constraints in accessing technology due to financial and infrastructural deficits were alleviated in several countries in Latin America through scholarships, grants, and the provision of hardware devices, including modems (Abdrasheva et al., 2022).

(Re)defining “Normal”

There is a divide between resuming “normal” as pre-pandemic traditional face-to-face teaching that many institutions strived to reinstate in the 2021-2022 academic year, while several institutions strive to redefine “normal” as having multimodal learning environments that offer greater flexibility, accessibility, inclusivity, and opportunities (Abdrasheva et al., 2022; Houlden & Veletsianos, 2022; Moore et al, 2021; Nworie, 2021).

Room for Improvement in Student Experience

Overall, students reported negative experiences with online learning that were attributed to a lack of peer-to-peer interaction and connection, gaps in technological literacy, barriers in technical access, learning gaps from prerequisite courses, lacking skills (e.g. time management, organization and communication), and living situations. Additional uncertainties, such as a timeline to graduation or other college related plans, job prospects and financial status, contributed to poor mental health among students. International students faced additional challenges because of different time zones, the inability to connect with family/friends in their home country, or the inability to travel to the country where they were enrolled in higher education (NSSE, 2021; Abdrasheva et al, 2022; Houlden & Veletsianos, 2022).

What Might We Look at Moving Forward

We have an opportunity to explore four areas for future growth and sustained change:

Teaching and Learning-Focused Inquiry

It will be helpful to engage in further inquiry and research to better understand the factors that facilitated or hindered continuity in teaching and learning during the pandemic.

Embedding Flexibility in Administration

How can institutions move forward in embedding flexible teaching and learning options into policies, programs, and infrastructural decisions?

Infrastructural Focus

How do we shift the lens from teacher and student experiences (micro) to institutional policies and infrastructure that supports innovative/resilient and high-quality teaching and learning offerings (macro)?

SOAR/SWOT Analysis

What opportunities exist within our institutional contexts for broader conversations about the strengths, opportunities, aspirations and results (SOAR) or strengths, weaknesses, opportunities and threats (SWOT) due to teaching and learning during the pandemic?

Exploratory Literature Review

The purpose of this exploratory review was to capture the lessons learned in teaching and learning during the COVID-19 pandemic, with a specific focus on how students and instructors adapted their teaching and learning practices for ERT (ERT), the impact of the sudden transition to ERT on educators and students, and their experiences and perceptions of teaching and learning during this period. We also explored how the COVID-19 pandemic affected postsecondary educators' and students' physical, mental, and emotional health, including aspects like burnout. A total of 1297 publications were imported into Covidence for review. Covidence removed 135 duplicates during the import, leaving 837 publications for screening. Upon completion of the screening, we included 28 articles from the import and 11 additional reports and published articles, for a total of 39 articles for full-text data extraction (Table 3).

Table 4: Study characteristics of included studies in the exploratory review

Characteristic	N	%
Region		
North America	14	36%
Asia	9	23%
Global	7	18%
Unspecified	4	10%
Europe	3	8%
South America	2	5%
Year Published		
2021	25	64%
2022	14	36%
Type of Publication		
Peer-reviewed journal article	30	77%
Report	9	23%
Methodology		
Quantitative	15	38%
Qualitative	13	33%
Mixed-Methods	6	15%

The key findings from the 39 articles were categorized into one of four themes. (a) impact of ERT on teaching and learning practices; (b) perceptions and experiences with ERT; (c) impact of ERT on physical, mental, and emotional health; and (iv) support received and strategies used to cope with ERT. Please see Appendix B for a thematic overview of the articles cited in the exploratory review.

In this next section, we summarize these findings within the categories of what we learned, what was missing, and what we might look at moving forward.

What We Learned

Importance of Flexibility

The sudden shift to ERT encouraged educators and students to be more “adaptable and resilient” in both teaching and learning. This included educators using asynchronous learning approaches and accommodating students while modifying teaching methods to meet the diverse needs of their students. Students also used various strategies to remain motivated and formed a sense of community and connection through virtual office hours and online group gatherings (Boström et al, 2021; Yeung & Yau, 2022). More specifically, flexibility was noted as a stress reduction tactic for both students and educators in both course design and assessment techniques (Alford et al., 2021; Rad et al., 2021).

Technology Integration and Digital Infrastructure

During the pandemic, educators leveraged various tools and platforms to support their teaching and enhance student engagement (Abdrasheva et al, 2022; Nworie, 2021). While institutions provided training to educators and students, many individuals struggled with accessing the required technology due to insufficient infrastructure. In addition, both educators and students faced challenges navigating new learning and technology platforms as there was a significant learning curve and limited technological literacy (Abdrasheva et al., 2022; Howe et al., 2021; Johnson, 2021; Weidlich & Kalz, 2021; Yeung & Yau, 2022). In addition, there was a negative impact on the student learning experience due to factors such as unstable internet connections and the hardware required for online lessons, such as the need for a camera and microphone to participate in discussions and build relationships with peers and instructors (Abdrasheva et al., 2022; Alexa et al, 2022; Fabriz et al, 2021; Houlden & Veletsianos, 2022; Kamble et al., 2021; Rad et al., 2021). The pandemic highlighted that it is vital that institutions carefully assess which learning tools worked well and which require improvement, while investing in assistive technology and other digital tools that can enhance online learning.

Support for Mental Health and Wellbeing

With the shift to online learning, and online spaces, students requested that institutions provide mental health support be made more available. Students also faced challenges in emotional well-being (Arribathi et al, 2021; Li & Che, 2022; NSSE, 2021; OECD, 2021), with individuals who studied at home or who were staying in rooms on campus reporting more occurrences of mental health challenges (Abdrasheva et al., 2022; Houlden & Veletsianos, 2022; Lee et al, 2021; Rad et al, 2021). Transitioning to ERT has also significantly impacted the work-life balance and perception of burnout among educators (OECD, 2021; Van Leeuwen et al, 2021).

Professional Development and Training

Some higher education institutions offered specific training and professional development related to technologies and tools for online learning, which positively impacted educators' preparedness and confidence to teach solely in an online setting (DeCarlo et al, 2022; Johnson, 2021; Johnson et al., 2021; Weidlich & Klaz, 2021). In addition, institutions provided technical support and instructional designers through teaching and learning centres to aid educators and students (DeCarlo et al., 2022; Howe et al., 2021; Nworie, 2021; OECD, 2021; Weidlich & Kalz, 2021).

What is Missing

Equity and Accessibility

While the shift to ERT notably supported accessibility for learning in many areas, it also exposed some barriers to equitable access. For example, many students lacked access to technology and reliable internet connectivity, while students from lower socioeconomic backgrounds were disproportionately affected by the shift to remote learning (Almendingen et al., 2021; Jung et al, 2021; NSSE, 2021; OECD, 2021). In addition, some students who required academic accommodations to succeed in their courses reported difficulty obtaining support from instructors and/or disability support centres (Goegan et al, 2022). Moving forward, it is essential to address these challenges.

What We Might Look at Moving Forward

Assessment Strategies and Evaluation

This shift to ERT also transformed educators' approach to students and student assessment; for example, traditional assessment methods may not be as effective in online settings (Alford et al., 2021; Andrews & Green, 2021). Educators need support and training in designing and implementing practical and innovative digital assessment methods. In addition, these innovative approaches to

assessment may put educators and students at ease over their concerns over academic integrity (Andrews & Green, 2021; Daniels et al., 2021; Mishra & Lal Raina, 2021).

Blended Learning

The pandemic has demonstrated the potential of blended learning, which combines both online and in-person teaching and learning strategies in academic courses. In fact, the data shows that educators are more optimistic about online and blended learning than they were pre-pandemic (Johnson, 2021; Johnson et al., 2021).

Flexibility in Teaching and Learning

The pandemic has shown the need for flexibility in teaching and learning practices (Alford et al., 2021). Moving forward, it is essential to continue prioritizing adaptability and flexibility, which may also encourage inclusivity and accessibility.

Creation of Clear Policies, Decision-Making Processes, and Guidelines

It is essential for higher education administrators to create clear pathways for high-quality online education and include online learning in their long-term teaching and learning strategies, policies, guidelines and decision-making processes (Nworie, 2021; OECD, 2021). It is also critical to analyze the support and strategies employed to help reduce the challenges of ERT to better understand how best to support educators and students within transitions such as these.

Summary

The COVID-19 pandemic has brought about significant changes in the education system, challenging institutions, educators, and students to adapt to new teaching and learning methods. While the pandemic has presented many challenges, it has also provided opportunities for growth and improvement in how we approach education. By focusing on the lessons learned from the pandemic and applying them to our teaching and learning practices moving forward, we can continue to evolve and improve our educational practices.

Community Conversations

The lessons learned from published reports and articles from the Canadian and International landscapes were shared with 135 faculty, staff, and students from nine faculties/units across the University of Calgary in small group settings over ZOOM. Attendees were invited to share their experiences with ERT and learning during the ZOOM meeting via verbal and online conversation. They were asked to document their experiences and opinions on a Padlet. Participants were invited to reflect and provide insight on the following questions.

- What have you seen/experienced in teaching and learning in your local context?
- What aspects of these experiences resonate with you?
- What aspects of these experiences do you want to leave behind?
- What would you like to know about emerging lessons learned in teaching and learning through COVID-19 and beyond?
- How could the University of Calgary strengthen teaching and learning, given what we have learned these last few years?

In this section, we share what we learned about UCalgary educators' and students' experiences during the pandemic, what they reported was needed but missing, and what they thought could strengthen teaching and learning at UCalgary in the future.

What We Learned

In this section, we share six key learnings discussed in the community conversations, supported by input from faculty members and students gathered during the discussions.

Teaching Practices

Some educators took the transition to emergency remote education as an opportunity to redesign and rethink their courses. For example, one faculty member shared that

"I redesigned my courses very carefully and had highly positive experiences teaching online during the pandemic. Student engagement was high, and so were student evaluations."

Another faculty member found that the switch to ERT "made faculty rethink why they are meeting students in person—what makes F2F so valuable. It is not the lecturing but rather the active learning components." The opportunity to improve

upon instructional approaches was met with some challenges related to adjusting to teaching in an online platform, with one faculty member reflecting that,

“Teaching to a Zoom room full of students with their cameras off makes me feel like (I’m) screaming into the void.”

Learning Experiences

Both students and faculty members reported challenges with student learning during ERT. While students appreciated the flexibility of accessing content and taking assessments at a time that suited them, they also expressed frustration with the quality of some teaching and the lack of communication and clarity from some course instructors. For example, one student shared that,

“I had a professor who did not use D2L to post course content, the class was live lectures only, with no recordings, and the prof did not acknowledge that many students were outside Canada in different time zones. If you missed the lecture for any reason, there was no way to catch up. We need people who are willing to be adaptable to the times.”

Educators also expressed concern about students’ learning. One faculty member said, “[students] didn’t retain the same amount of information—across our faculty, professors stated that students didn’t retain many core concepts during online learning.”

The Importance of Community

We heard from both students and faculty members that ERT seemed to compromise the sense of community and relationships between faculty and students. For example, one faculty member noted that,

“Students seem to place a lot of value upon the classroom/university experience to create a sense of community and promote student wellbeing. This seems to be at odds with the structural decisions made beyond the scope of control of faculty or students.”

For students, the shift to only online courses posed challenges to developing connections with their peers and instructors. One student shared that it seemed like

“Unconscious osmosis—online learning works for some courses, but some students didn’t realize that they learn from the interaction in the classroom. So, a hybrid course may be more useful than all online learning.”

Accessibility

For some students, remote learning was beneficial, particularly for those who had competing obligations, but students also needed help with learning and succeeding on assessments. For example, one undergraduate student said online learning increased “work-life balance. Students could work remotely/part-time jobs and pursue school.”

In another instance, a faculty member shared that one “advantage of covid was the technology that became available or known of (example Jamboard, Google Docs)—a safe space for students to express/illustrate themselves without exposing their identity.”

Supports and Resources

Some educators identified the importance of teaching and learning resources and support when learning to teach in new modalities. For example, three faculty members commended the resources and training available through Taylor Institute for Teaching and Learning.

“Quality design matters—both online and in-person courses need to be designed for delivery in the modality of the course. Educators need support, resources, and time to meaningfully design and deliver their courses.”

“I also worked with Taylor Institute coaches and colleagues who are very good with technology, and frankly, I do not understand why others report issues with D2L etc. when there is so much support and training available.”

“I thoroughly enjoyed and felt supported with some excellent materials about online learning available from the Taylor Institute. Even the acknowledgement that this was a whole new skillset was supportive. COVID required an immediate response to online learning, however hybrid learning is here to stay.”

Student Assessment

The assessment issue proved to be prescient among students and faculty members in these conversations. Some educators expressed concerns about academic integrity and misconduct when administering online assessments and were unsure of how to sustainably introduce flexibility and alternative assessments, while one student said how beneficial it was to have some flexibility in submitting assignments:

“There were many more conversations around the department about assessment, initially focused on academic integrity (and frustrations around

this), but it has shifted towards more conversations about creative and flexible assessments that improve the student experience.” – Faculty Member

“Flexibility accommodation - I've had a professor agree to allow submissions of our assignments be till the end of the term rather than constant due dates throughout the term. All our assignments were a free for all type where we could submit whenever as long as we handed everything in by the end of the term. This helped alleviate anxiety of overlapping due dates.” – Undergraduate Student

What is Missing

In this section, we summarize what participants shared about what they need, and do not feel they have, to deliver high-quality blended, online, and hybrid courses.

Institutional Policies, Structures, Guidelines and Procedures

Faculty expressed the need for institutional policies, structures and procedures that encourage creativity and flexibility in assessments and course modality while maintaining academic rigour and meeting required deadlines. For example, one faculty member suggested it would be helpful to “simplify and streamline processes and policies to support innovation and great teaching and learning.” Another faculty member shared that

“Experiences in pedagogy (specifically assessment) not in sync with institutional procedures – educators want to continue offering flexible deadlines and extensions but hard 6 business days for final grades; assessment practices were not addressing their specific intended learning outcomes there is a juxtaposition against aspects like grade deadlines.”

In another instance, a faculty member shared that there would be a benefit to having a “clear use of terms and definitions. Hybrid, hyflex, etc.”

Support for Mental Health and Wellbeing

In addition to the global pandemic, faculty perceived that they experienced higher than typical workloads, including but not limited to providing support for students' mental health. One faculty member said that the increased “stress and demands on faculty, and mixed messaging from leadership and student demands had placed untenable stress upon faculty. There's no consistency or support for instructors dealing with the real workload impact of this scenario.” Another faculty member felt the acute pressure to be,

“a SME, a teacher, and a DJ/ IT master as well as double your administrative time to manage teaching, student needs, navigate technology and respond to

requests for deferrals, legitimate accommodations, or some outlandish requests from students to photocopy from a new edition textbook they refused to buy. The lack of clarity of expectations around boundaries and workload is exhausting, as class sizes increase. How do we institutionally support clear expectations and boundary development in our culture?"

One positive outcome of the pandemic was a shift in social responsibility where people are more generally aware of mental health. One student shared that,

"I had a professor do mental health check ins with us because they knew that the pandemic and schooling online did in fact affect our well-being and so having that genuine conversation from our professor really helped build a strong classroom environment for us and it was all very positive and helpful to have."

One faculty member hoped that there might be a "new normal" established that supports people staying home when they are sick and resting, saying that,

"Blurring of boundaries – [work from home] changed people's perspective – some learned they could be productive while working from home. New normal of staying home when feeling unwell but the notion of "if you're too sick to be physically at work, then you are also too sick to work from home" needs to be implemented. The expectations of your ability to work should not change based on where you are."

What Might We Look at Moving Forward

Participants in the community conversations shared the following ideas about strengthening teaching and learning at UCalgary, given everything they have learned through the pandemic.

Future-Focused Delivery

How can we provide learning opportunities outside of face-to-face teaching and learning? Both faculty and students were excited about the possibility of diversifying course delivery modalities and engaging in intentional course and program design. One faculty member suggested that,

Hybrid is not the only answer—while hybrid poses opportunities, there are other answers for future-focused delivery. The TI can help faculties and departments determine which courses/programs could be designed for in-person, online, or hybrid delivery.

Another faculty member reflected, "If we truly embrace EDI here at the UCalgary, we should continue to focus on various modalities and offer utmost flexibility to

our students.” Students shared that they appreciated having the opportunity to engage in online learning because it “allowed students more opportunities to find jobs while completing their degree. They would like to see their degrees offered in person and online (either within courses or select courses).”

When considering the future-focused course and program delivery, modality may be a key concept to remember. For example, one faculty member said that,

“Modality means a lot to people—the issue of course modality is critical to many people and mandated modality has resulted in rage and threats to faculty members by students/parents. The importance of choice and design has really come to the fore throughout the pandemic.”

Another faculty member emphasized the “need to be very intentional when choosing modality, ” while another faculty member asked, “how is needs analysis [for choosing program modality] done at UCalgary?” Faculty discussed the need for adequate support and flexibility to determine the most suitable modality for their courses, while students expressed an interest in being able to choose the modality that best met their needs.

Improvements to Infrastructure

Faculty members highlighted the need to improve the physical and digital infrastructure to aid with blended, hybrid and online learning environments. For example, one faculty member suggested that there needs to be “More understanding of how to shift to blended learning for everyone is imperative from hardware and software considerations and IT support to time and task analysis for workload management to and ongoing training.” Another faculty member reflected that,

“Infrastructure for hybrid learning and the ability to integrate the use of technology in pedagogy needs to be available campus wide and not just in the TI. With the TI being the only place that is fully equipped with technology, it limits what instructors can do, even if they want to be flexible and offer hybrid learning.”

Comments such as these may indicate that educators seek the resources and infrastructure to support innovative pedagogies and delivery strategies, central to future-focused delivery.

Integrated Findings

The findings from each phase of lesson gathering provided unique insight into global, national, and local experiences and perspectives about the impact of the pandemic on higher education. When aggregated and reviewed, the findings from the exploratory review and community conversations mapped seamlessly to the conclusions of the environmental scan. In this section, we summarize the findings from this study as they relate to each other.

Teaching and Learning Practices, Supports, and Resources

The importance of teaching and learning resources and support was reiterated across each phase of this initiative. We found three key considerations in the information that we gathered: (a) flexibility, (b) workload, and (c) teaching and learning supports. Flexibility and workload considerations go together. While students have noted an increased expectation for flexibility from their instructors, educators have been asked to do more with increasingly less, which has contributed to increased rates of burnout (Alford et al., 2021). In some instances, 35% of educators “seriously considered changing careers and leaving [their] higher education” positions (OECD, 2021, p. 18). More specifically, female educators experienced the loss of boundaries and the work-life balance to a much greater extent than their male counterparts. As a result, female educators reported feeling more overworked and overloaded by competing obligations (74% versus 63%) (OECD, 2021, p. 18; VanLeeuwen et al., 2021).

These findings align with the NSSE (2021) report, in which faculty were asked seven new questions about their teaching experience through the pandemic. Nearly all respondents felt that they had done a good job supporting students. Most respondents indicated that they had adjusted assignments, were more flexible about deadlines, and had modified their course content. However, nearly all respondents noted that their institutions could have done a better job at supporting students through the pandemic. Despite the perceived lack of institutional support, faculty members have shared that they were increasingly committed to instructional development to meet the changing needs of their roles.

Teaching and learning supports and resources were consistently identified by educators as crucial for helping balance workload and meet expectations for flexibility. Some educators noted that the support and resources offered were pivotal in learning not only how to run an online class (technology-wise) but to teach it effectively, highlighting that “remote training requires knowledge, training, and infrastructure” (Faculty member, Community Conversations). Faculty in the Campus Conversations emphasized the importance of adequate infrastructure to support

hybrid, blended, and online learning in the future, including hardware and software support, IT (Information Technology) support, and ongoing training and resources.

Some of the professional development that was helpful to educators included supporting educators to succeed in online courses (58%), how to help remote students (58%), how to gain increased access to online digital resources (53%), and best practices for working and teaching from home (53%) (Johnson, 2021; Johnson et al., 2021). UCalgary educators commended the Taylor Institute for Teaching and Learning, sharing that the resources provided by the university during the pandemic were helpful, especially related to the implementation of online learning. More specifically, they “thoroughly enjoyed and felt supported with some excellent materials about online learning available at the Taylor Institute” (Faculty member, Community Conversations). Educators noted that although it was not the perception in the beginning, the perspective on technology use has shifted, and educators now believe it is possible to integrate new systems and technology such as ZOOM, in only a few weeks.

Importance of EDIA in Decision-Making and Planning

Issues of equity, diversity, inclusion, and accessibility (EDIA) directly affected faculty and students’ experiences throughout the pandemic. Specifically, we identified three considerations for future planning: (a) negotiating work, home, and study arrangements, (b) mental health and well-being, and (c) re-defining a new normal. Evidence from each phase of this review indicated that students were disproportionately affected by a lack of access to appropriate study environments that were free of distractions. The availability and access to e-resources negatively affected student participation in class and limited focused attention on assessments (Yeung & Yau, 2022). These challenges were faced more frequently and often negatively affected international students, students from low-income households, and members of minority groups, including Black, Hispanic, and 2+LGBTQIA students (Abdrasheva et al., 2022).

As we look forward to a post-pandemic reality, there remains a divide between resuming “normal” as pre-pandemic traditional face-to-face teaching that many institutions strived to reinstate in the 2021-2022 academic year, while several institutions are striving to redefine “normal” as having multimodal learning environments that offer greater flexibility, accessibility, inclusivity, and opportunities. One study conducted in 2022 indicated that 39% of students have chosen to take all their classes in person, 56% prefer hybrid courses or a combination of in-person and online course options, and 5% of students are choosing to take all their classes online (Napierala et al., 2022). This information may indicate that students value the ability to choose the modality that best suits their holistic needs.

Students' mental health and wellbeing were similarly impacted throughout the pandemic. Students requested that institutionally provided mental health support be made more available and known. Despite efforts by institutions to increase mental health services by hiring additional psychologists for 1:1 counselling, group therapy, and peer support networks, usage of these services was not as high as expected (Abdrasheva et al., 2022; Houlden & Veletsianos, 2022). These gaps between evidenced need and help-seeking begs the question, "how has mental health and wellbeing changed throughout the pandemic, and how can institutions meet these changing needs?"

The information about mental health found in this project was discussed as a secondary or tertiary aspect of teaching and learning during the pandemic, rather than the primary focus. This absence of ongoing data (after 2020) may indicate that reporting focused broadly on perceived successes and challenges related to teaching and learning rather than delving into the known impacts of Covid-19 on mental health. Studies such as the 2022 NSSE Report and a recent study conducted by the University of Saskatchewan (2022) have highlighted the need for institutions and educational programs to consider the holistic needs of students, including fostering a sense of belonging and relevance in educational programs and campus cultures. While studies like this are generally helpful, there remains a gap between what we knew pre-pandemic and what we need post-pandemic. How has mental health and wellbeing changed since the pandemic, and how has the pandemic both exposed and exacerbated the disproportionate effects on students, staff, and faculty from equity-seeking groups? What strategies, approaches, or frameworks have proven effective in supporting both students' well-being and faculty capacity?

Role of Institutional Practices, Analysis, and Infrastructure

We found a paucity of information on how teaching and learning may look when most courses have reverted to face-to-face teaching (i.e., how will institutions build/add/modify their pre-Covid-19 practices to integrate their Covid-19 experiences). Moving forward, there were two areas of consideration for institutions: (a) infrastructural focus and policy and (b) conducting needs assessments. With flexibility being important to faculty and students throughout the pandemic, it may be helpful for institutions to embed flexible teaching and learning options into policies, programs, and infrastructural decisions. Though many institutions offered technology training to educators and students throughout the pandemic, many had difficulties with accessing the technology due to lack of availability and infrastructure, as well as trouble navigating new learning technology platforms due to a lack of technological literacy and digital readiness (Abdrasheva et al., 2022; Howe et al., 2021; Johnson, 2021; Yeung & Yau, 2022). It may be useful for institutions to support technological onboarding and training for faculty and students to improve digital literacy.

With diverse modalities being implemented by more programs and faculties, there is a need to define modalities-in-use in localized contexts clearly. For example, it may be appropriate for institutions to define blended, online, hybrid, and hyflex modes of course delivery to promote consistency for students and faculty. It may also be beneficial for institutions to create a blended and online learning strategy, including considerations for ERT and unanticipated disruptions, and establish guidelines for online education, including the incorporation of Universal Design for Learning (UDL) principles (Andrews & Green, 2021; Goegan et. al., 2022).

Critical reflection on our experiences from teaching and learning in higher education during the pandemic could indicate an institution's readiness for the future. All aspects of what worked, what did not work, the decisions that were made, and the impact of those decisions on all stakeholders could be considered, including but not limited to governance, strategic planning and institutional missions, policies, infrastructure and training resources, EDIA considerations, and the positive and negative outcomes of decision making (Moore et al., 2021).

Looking Forward

As of May 5, 2023, the World Health Organization declared the end of the Covid-19 global health emergency (World Health Organization, 2023). This declaration moves us closer to a post-pandemic reality that will involve healing, mourning, re-normalizing, and change. What we have learned in this study is that what was normal pre-pandemic may not be typical, or achievable, post-pandemic. As we look forward to the potential of a post-pandemic institutional landscape, perhaps we can ponder the following questions:

- **Adaptability**
How can adaptability and resilience to disruptions be fostered in the future by providing sustained policy, infrastructural, technological, and financial support for the teaching and learning community?
- **Flexibility**
How can flexibility be embedded into teaching and learning design and decision-making to support agile, future-focused programs and courses?
- **Wellbeing**
How could institutional support for mental health and wellbeing be strengthened through an intersectional approach that accounts for issues of equity, diversity, inclusion, and accessibility?
- **Planning**
What types of guidelines, frameworks, or processes could be developed to support blended, online, and remote learning to support faculties and departments as they make decisions about programming and course delivery?

While these questions are not exhaustive, we hope they may be a starting point for conversations about what post-pandemic teaching and learning looks like in diverse places and spaces.

Appendix A: Environmental scan thematic summary

Type of source	Citation	Theme(s)	Summary
Podcast	Block, E. (2021). Teaching plus podcast. University of Alberta. https://www.ualberta.ca/centre-for-teaching-and-learning/teaching-support/teaching-plus-podcast.html	Teaching practices	The transition to ERT allowed the instructor to become more organized with their course and forced them to rethink the importance of the content being taught, how they deliver course content, and the value of face-to-face instruction
Newsletter	Boklaschuk, S. (2020, December 11). USask professors prepare for innovative, engaging online classes in term 2. University of Saskatchewan. https://news.usask.ca/articles/colleges/2020/usask-professors-prepare-for-innovative,-engaging-online-classes-in-term-2.php	Transition to remote teaching; Student engagement; Learning technologies	Educators continued to provide “unique and interesting courses” during ERT by redesigning class activities and changing the way in which lectures were delivered (eg: through short videos, pre-recorded lectures, guest speakers, etc)
Blog	George, N. C. (2020, July 20). Remote delivery experiences and advice: Lessons learned from winter 2020. Teaching for Learning @ McGill University.	Learning technologies; Best practices for blended and online learning	Learning technology increased active learning and student participation and allowed instructors to continue providing high quality learning experiences.

	https://teachingblog.mcgill.ca/2020/07/09/remote-delivery-experiences-and-advice-lessons-learned-from-winter-2020/		Based on their experience, educators within the Faculty of Science made recommendations for remote teaching.
Newsletter	Joudrey, S. (2021, May 26). Lessons learned: Moving to teaching online. Focus on University Teaching and Learning. https://focus.clt.dal.ca/blog/lessons-learned-moving-to-teaching-online	Student learning experience; Teaching practices; EDIA	The transition to ERT gave the educator an opportunity to consider the most important aspects of their course: contact time and interaction. Moving into online teaching in Fall 2020, the educator will implement a team-based learning model online to allow students to interact with their peers and the instructor, and will reconsider their course organization, content, assessments and delivery.
Newsletter	Layne, M. (2020, December 10). Putting students first: Engineering pro takes cues from in-person experiences for pandemic-era classes. Dal News Dalhousie University. https://www.dal.ca/news/2020/12/10/putting-students-first--engineering-prof-takes-cues-from-in-pers.html	Learning technologies; Blended learning; EDIA	The use of short, digestible, high-quality lab demonstrations and lectures and complemented with synchronous tutorials and office hours provided an “overwhelmingly positive” learning experience for students. The videos hosted on YouTube allowed students to access the material on-demand, at their desired playback speed and with closed captioning.

Blog	Learpin, E. (2021, March 16). Teaching and learning remotely: A year in review. Teaching for Learning @ McGill University. https://teachingblog.mcgill.ca/2021/03/16/teaching-and-learning-remotely-a-year-in-review/	Workload; Teaching practices; Learning technologies	Two advantages of remote teaching were that experts from across the world could be invited to deliver guest lectures, and that student engagement increased through chat features and breakout groups. However, other aspects of remote teaching were time consuming and challenging, such as the constant need for educators to be adaptable and flexible in their teaching practices, the need to learn and choose appropriate learning technologies for their course and the need to critically reflect on their teaching and assessment practices to balance workload for students and themselves.
Report	Napierala, J., Pilla, N., Pichette, J., & Colyar, J. (2022, March 30). Ontario learning during the COVID-19 pandemic: Experiences of Ontario first-year postsecondary students in 2020-21. Quality Council of Ontario. https://heqco.ca/pub/ontario-learning-during-the-covid-19-pandemic-experiences-of-	Student experience; Student preparedness; Gaps in education and skills	Students perceived the fully online learning environment to negatively impact their learning, their ability to make friends and maintain their mental health, and these impacts were more prevalent in students in STEM fields and/or from low-income households. This negative learning experience was attributed to the lack of academic and non-academic preparedness for

	<p>ontario-first-year-postsecondary-students-in-2020-21/#:~:text=Students%20overwhelmingly%20felt%20the%20fully.to%20an%20even%20greater%20degree</p>		<p>postsecondary education. Considering these results, Higher Education Quality Council of Ontario provides recommendations to improve student satisfaction and success.</p>
<p>Blog</p>	<p>Samuel, C. (2021, February 2). When pandemic teaching goes well. Teaching for Learning @ McGill University. https://teachingblog.mcgill.ca/2021/02/02/when-pandemic-teaching-goes-well/</p>	<p>Student learning; Student engagement</p>	<p>Teaching and learning online allowed the instructor and students to tailor their experience by personalizing their ZOOM settings. It allowed the instructor to relax and enjoy teaching and facilitated student interaction with the course content and with each other using the chat feature. The students' engagement with the course content resulted in higher quality essays than is usually expected in the course. The chat feature also provided a window for the instructor to understand ways in which they can connect their teaching to student interests.</p>
<p>Blog</p>	<p>Samuel, C. (2021, July 13). Promoting student success during a pandemic and beyond. Teaching for Learning @ McGill University.</p>	<p>Teaching practices; Flexibility; Accommodations</p>	<p>The educator podcasted their lectures and provided the transcripts to those who had trouble accessing the podcasts. They also used a “disability</p>

	https://teachingblog.mcgill.ca/2021/07/13/promoting-student-success-during-a-pandemic-and-beyond/		forward” approach and created flexible deadlines for assignments. To facilitate student interaction, they held “group office hours” and created an assignment that required student collaboration and peer feedback.
Newsletter	Sears, S. (2022, July 5). Reducing stress and increasing engagement with “contract grading”. Macpherson Institute. https://mi.mcmaster.ca/reducing-stress-and-increasing-engagement-with-contract-grading/	Student evaluation	The instructor implemented contract grading to remove the stress associated with grades, promote engagement with the course material and put teaching assistants and students in a better position to give and receive feedback.
Newsletter	Stuart, C. (2022, July 25). Bringing the rocks to the people: The creation of a virtual geological field trip. Macpherson Institute. https://mi.mcmaster.ca/bringing-the-rocks-to-the-people-the-creation-of-a-virtual-geological-field-trip/	Experiential learning; Learning technologies; EDIA	The transition to ERT spearheaded the development of a virtual geological field trip to “bring the field to students wherever they are”. The educators used an online tool, ESRI Storymap, to combine several aspects of data collected in the field (eg: images, maps, drone surveys, photos, etc) and provided narrative descriptions and question prompts to simulate a field-based learning experience.

Report	<p>UBC Centre for Teaching, Learning and Technology. (2022, January 9). "Beyond COVID": the future of teaching and learning.</p> <p>https://academic.ubc.ca/sites/vpa.ubc.ca/files/documents/Learning%20and%20Teaching%20Beyond%20COVID%20-%20Phase%201.pdf</p>	<p>Universal Design for Learning; EDIA; Teaching and learning practices</p>	<p>The focus of this report was to understand the positive aspects of ERT and to identify aspects of ERT that should be incorporated into teaching and learning practices, as well as identify ways to improve teaching and learning. The report explores five themes: innovation and flexibility, inclusion and well-being, technology and support for faculty and student success, and, processes and policies.</p>
Podcast	<p>University of Calgary. (2020). COVID coffee chats.</p> <p>https://podcasts.apple.com/us/podcast/covid-coffee-chats-ucalgary/id1537249443</p>	<p>Teaching practices; Student engagement; Student support</p>	<p>This podcast series interviews educational leaders, graduate and undergraduate students and educators to learn about how institutions, students leaders and educators have supported students and continue to provide a high quality learning experience.</p>
Surveys	<p>University of Ottawa. (2020). Transition to distance/online teaching and learning: Snapshot of instructor, student and teaching assistant experiences.</p> <p>https://saea-tlss.uottawa.ca/en/innovation-research/survey-results</p>	<p>Teaching preparedness; Teaching and Learning Supports; Learning technology; Interaction</p>	<p>The Teaching and Learning Support Service (TLSS) collected surveys from students, teaching assistants and instructors in Summer 2020, Fall 2020 and Winter 2021. These surveys showed an evolution in challenges experienced by instructors from being primarily technology related</p>

			<p>to engaging students and designing effective learning activities. Instructors continued to use small and low stakes assessments but have also incorporated small group work, polling and brainstorming tools. Throughout the pandemic, students found isolation, lack of interaction and a lack of a sense of community to be a challenge, but other challenges also existed, such as, distractions from family/roommates, lack of motivation and too many assessments. However, more than 50% of all instructors, students and teaching assistants were aware of institution supports and resources, and over 50% of instructors used the TLSS services.</p>
<p>Newsletter</p>	<p>Wilson, S. (2021, March 31). 'We've gained the confidence to try new things': Faculty of engineering dean on a year of disruption and change. Dal News Dalhousie University. https://www.dal.ca/news/2021/03/31/-we-ve-gained-the-</p>	<p>Interaction; Flexibility; Wholistic development; Teaching practices</p>	<p>Well-designed online lectures are highly valued by students as it offers flexibility to access lectures when needed. There was confirmation of the value of community, peer-to-peer interaction, and extra- and co-curricular activities that enhances that overall student experience.</p>

	confidence-to-try-new-things---faculty-of-engi.html		Overall, the transition to ERT gave educators the “confidence to try new things” and the lessons learned from remote teaching can be used to adapt the pedagogies that are currently being used.
Published article	Marin, L. F., Valgardson, B. A., Watson, E. (2022). Evaluation in the time of crisis: Evidencing value at a centre for teaching and learning during the Covid-19 pandemic. International Journal for Academic Development, (ahead of print), 1-13. https://doi.org/10.1080/1360144X.2022.2082437	Educational development; Teaching and learning supports	Evaluating impact of teaching and learning centres had to evolve from relying almost exclusively on participant satisfaction to also include the availability of online resources, such as videos, websites and interview data. During the transition to ERT, the number of unique visits to online resources doubled compared to the same time in previous years. Other metrics of impact were number of views received on videos posted to Youtube, number of participants at workshops, seminars, webinars, consultations and online office hours.
Report	NSSE. (2021). The pandemic and student engagement: Trends, disparities, and opportunities. https://nsse.indiana.edu/research	Student engagement; Mental Health	The 2020-2021 academic year had a substantial increase of students enrolled in online and web-based courses (~65%). As a result, some forms of student engagement were negatively impacted, for example,

	<p>h/annual-results/2021/story1.html</p>		<p>collaborative learning, discussions and student-faculty interactions, but other forms of student interactions remained relatively unchanged compared to previous years. There was a correlation between mental health status and course modality, where students enrolled in mostly remote and hybrid courses experienced more mental or emotional exhaustion, depression, increased anxiety and had difficulty concentrating and sleeping.</p>
<p>Report</p>	<p>Abdrasheva, D. Escribens, M., Szaliewa, E., do Nascimento, D. V., & Yerovi, C. (2022). Resuming or reforming? Tracking the global impact of the COVID-19 pandemic on higher education after two years of disruption. UNESCO. https://www.iesalc.unesco.org/wp-content/uploads/2022/05/IESALC_COVID-19_Report_ENG.pdf</p>	<p>Teaching preparedness; Student preparedness; EDIA; Workload; Wellbeing</p>	<p>From March 2020, institutions across the world experienced some form of abrupt campus closures, fluctuating policies and procedures, and, gradual reopening(s). With the onset of the pandemic, educators had a very heavy workload to transition their courses online and potentially shift their course towards student-centered learning, rather than traditional lectures. Likewise, educators had to revise their assessments to maintain academic integrity, and to reflect the resources available and the</p>

			<p>potential challenges for students and assessors. The transition was relatively smooth in countries that were integrating learning technologies prior to the pandemic, but other countries required a high upfront investment and steep learning curve to maintain academic continuity. Similarly, students were also challenged to shift from passive note-taking to active learning to engage with the material. The pandemic emphasized the “digital divide” where access to technology was a barrier that students and educators faced, and some countries and financially stable institutions were able to provide financial and technological support. Students perceived their experience with online learning negatively and this perception could be attributed to the lack of interaction and barriers to technological access. Faculty wellbeing was also negatively impacted as a result of the pandemic and the shift to ERT. However, with the new experience</p>
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			<p>of using learning technologies, faculty have shown a shift in their attitudes towards continuing to use learning technologies post-pandemic.</p>
<p>Published article</p>	<p>Houlden, S., & Veletsianos, G. (2022). A synthesis of surveys examining the impacts of COVID-19 and emergency remote learning on students in Canada. <i>Journal of Computing in Higher Education</i>, 0(0). https://doi.org/10.1007/s12528-022-09323-4</p>	<p>Educational experience; Mental health and wellbeing; Financial concerns</p>	<p>This paper examined the student experience by analysing institutional surveys from across Canada. The authors identified four themes related to the student experience: educational experiences, mental health and wellbeing, financial concerns and impact on future plans. Educational experiences was tied to access to technology which varied by institution and student demographic. Other factors that affected educational experiences were work/study space, competing obligations, increased workload and challenges with learning and navigating learning technologies. Mental health and wellbeing was a top concern for institutions with many students experiencing increased psychological distress related to the pandemic, finances and their educational and career trajectories. Financial concerns</p>

			<p>related to cost of living, income, tuition fees, degree-completion timelines and the value of their education was also reported. Some survey reports also included recommendations and responses from institutions for navigating education and student life during the pandemic.</p>
<p>Report</p>	<p>Moore, S., Trust, T., Lockee, B., Bond A., & Hodges, C. (2021, November 10). One year later...and counting: Reflections on ERT and online learning. EDUCAUSE Review. https://er.educause.edu/articles/2021/11/one-year-later-and-counting-reflections-on-emergency-remote-teaching-and-online-learning</p>	<p>Teaching preparedness; Resilience; Blended and online learning</p>	<p>Institutions that had invested in online education prior to the pandemic were more prepared for pandemic related disruptions to teaching and learning and experienced increased enrollments in their programs, while the opposite was true for institutions that resisted online learning. Further, the authors also specifically distinguish ERT from online learning and draws attention to the types of resistance to online learning, as well as the reforms to teaching practices that has occurred during the pandemic. Lastly, the authors challenge the definition of “normal” in the context of teaching and learning post-pandemic.</p>

<p>Report</p>	<p>Nworie, J. (2021, May 19). Beyond COVID-19: What’s next for online teaching and learning in higher education? EDUCAUSE Review. https://er.educause.edu/articles/2021/5/beyond-covid-19-whats-next-for-online-teaching-and-learning-in-higher-education</p>	<p>Resilience; Innovation; Technology and Infrastructure; Institutional Leadership; Teaching and Learning</p>	<p>The report discusses the criticality of capturing the learnings of the pandemic and incorporating them into a post-pandemic era in higher education institutions. The authors encourage a supportive institution culture that embraces innovation and collaboration. The authors also suggested that ERT practices be reevaluated and improved upon. Finally, the authors suggest that strong institutional leadership is vital especially in the areas of online learning and technological infrastructure.</p>
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Appendix B: Thematic summary of the articles used in the exploratory literature review

Theme	Studies	Considerations
<p>Impacts on teaching and learning during ERT</p>	<p>Andrews & Green, 2021 Daniels et al, 2021 Fabrizz et al, 2021 Johnson, 2021 Johnson et al, 2021</p>	<ul style="list-style-type: none"> • Professional development for teaching online • New pedagogical practices • Experiential learning and collaborative learning • Academic integrity and assessment design • Student engagement and peer to peer interaction • Access to technology and infrastructure • Student performance

	<p>Napierala et al, 2022</p> <p>NSSE, 2021</p> <p>OECD, 2021</p> <p>Li & Che, 2022</p> <p>Yeung & Yau, 2022</p>	
<p>Impacts on physical and mental health</p>	<p>Abdrasheva et al, 2022</p> <p>Arribathi et al, 2021</p> <p>Houlden & Veletsianos, 2022</p> <p>Li & Che, 2022</p> <p>NSSE, 2021</p> <p>OECD, 2021</p> <p>VanLeeuwen et al, 2021</p>	<ul style="list-style-type: none"> • Psychological impact of lockdowns • Financial stress • Degree completion timelines • Job and career prospects • Fatigue • Balancing competing personal and professional demands • Increased responsibilities on faculty • Physical stress associated with long screen time
<p>Perceptions of the quality of teaching and learning during ERT</p>	<p>Abdrasheva et al, 2022</p> <p>Alexa et al, 2022</p> <p>Andrews & Green, 2021</p> <p>DeCarlo et al, 2022</p> <p>Kamble et al, 2021</p> <p>Mishra & Lal Raina, 2021</p> <p>Rad et al, 2021</p> <p>Weidlich & Kalz, 2021</p>	<ul style="list-style-type: none"> • Positive outlook towards using technology • Compassion towards students' lives outside the classroom • Reconsiderations towards assessment design • Effectiveness of learning online

<p>Experiences with teaching and learning during ERT</p>	<p>Abdrasheva et al, 2022 Almendingen et al, 2021 Goegan et al, 2022 Houlden & Veletsianos, 2022 Howe et al, 2021 Johnson, 2021 Johnson et al, 2021 Jung et al, 2021 Lee et al, 2021 Mishra & Lal Raina, 2021 Napierala et al, 2022 Novotny et al, 2022 OECD, 2021 Weidlich & Kalz, 2021</p>	<ul style="list-style-type: none"> • Mixed experiences with student engagement • Benefits of online learning • Challenges with online learning, especially during a pandemic • Changes in student learning strategies • Decreased student satisfaction • Workload for faculty to transition face-to-face instruction to online
<p>Strategies used to adjust to ERT</p>	<p>Alford et al, 2021 Boström et al, 2021 Johnson, 2021 Nworie, 2021 Weidlich & Kalz, 2021</p>	<ul style="list-style-type: none"> • Professional networks • Learning design and technology • Professional development • Self-regulated learning strategies • Back-up electronic devices

	Yeung & Yau, 2022	
<p>Supports available and received to adjust to ERT</p>	<p>Abdrasheva et al, 2022 Alford et al, 2021 DeCarlo et al, 2022 Howe, 2021 Johnson, 2021 Johnson et al, 2021 OECD, 2021 Yeung & Yau, 2022</p>	<ul style="list-style-type: none"> • Webinars, online resources, one-to-one consultations, and assistance with technology • Financial assistance

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