Université Laval | Chair in Educational Leadership in Innovative Pedagogical Practices in Digital Context – National Bank

International Observatory on the Societal Impacts of AI and Digital Technology

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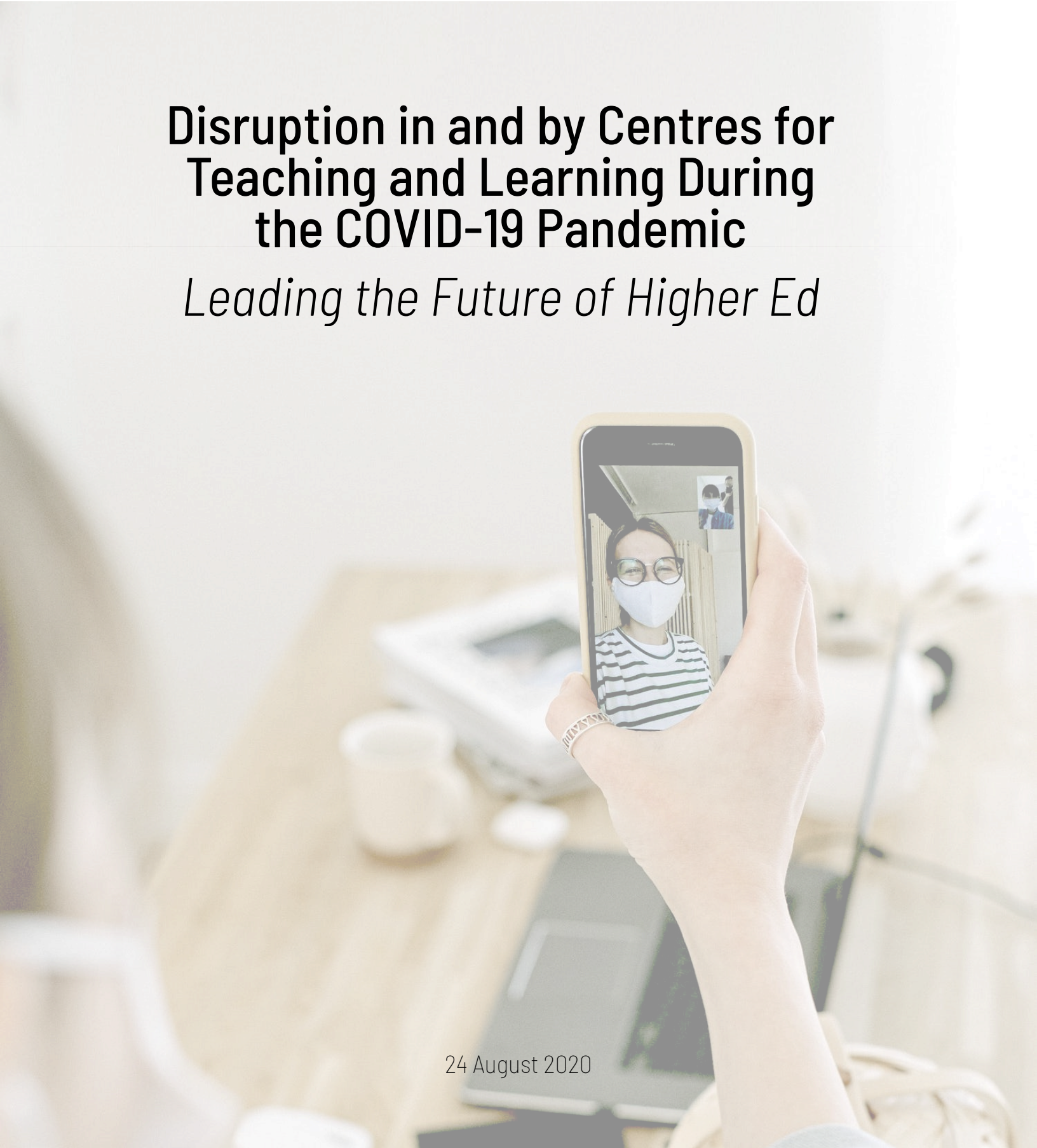
Disruption in and by Centres for Teaching and Learning During the COVID-19 Pandemic

Leading the Future of Higher Ed



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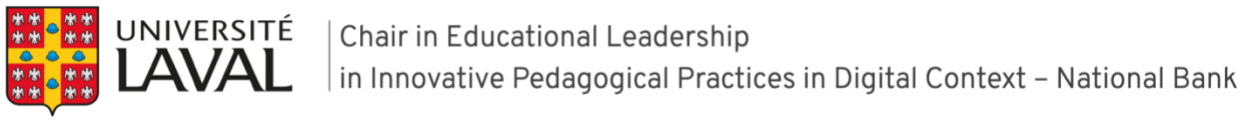

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EXECUTIVE SUMMARY

Today the educational community as a whole faces a universal challenge: to ensure equitable and quality education as well as effective and efficient evaluation of student learning in hybrid, flexible or 100% distance modalities for their students. In addition, we must also plan for the post-COVID-19 pandemic era. Centres for Teaching and Learning play a pivotal function in addressing and overcoming this challenge. In the midst of the pandemic, the centres, the equivalent services, and their teams of instructional designers, teaching and learning experts and multimedia developers became the first responders to support the pedagogical and digital transformation of all courses.

The Centres became the *academic heroes of COVID-19*. They exceeded all expectations for what they could handle in this kind of emergency.

The urgent requirement for these centres and their teams will persist until the war against the COVID-19 pandemic is won, and the core of education is transformed.

This white paper illuminates how Centres for Teaching and Learning, and equivalent entities addressed and plan to address trends and issues in digital learning in the context of educational disruption caused by COVID-19.

To conduct our project, we recruited nineteen Centres for Teaching and Learning and equivalent teams from Canada, the USA, Lebanon, the UK and France. The size of the centres ranged between three and 150 staff. We engaged the directors or representatives of the centres in an hour and half discussion about the practices they have employed to support online delivery of courses in the face of the COVID-19 pandemic. We also collected and analyzed publicly shared resources from 78 CTLs in 68 universities and educational institutions located in 23 countries.

The white paper is being shared in the belief that all Centres will benefit from having access to the innovative strategies other Centers who have faced similar challenges have used successfully and the problems they have encountered. The benefits will hopefully extend to educational institutions, faculty members, students and policy makers.

Educational institutions will benefit from the cutting-edge knowledge synthesized in this guide and hopefully use it to inform how they plan to tackle the future design of online courses and programs as we learn to work in a COVID-19 context.

Faculty members will benefit from reading the “backstage” experience of the teams who gave their all to provide support for them and their colleagues at a time when everyone felt overwhelmed by the new challenge.

Students will better appreciate the extent at which Centres for Teaching and Learning and faculty members went out of their way to help them complete the Winter 2020 semester and to help them find their place in the COVID-19, physical-distancing, education era.

Policy makers will benefit from the wealth of experiences that have been reported and the commentaries that shed light on various aspects of designing online learning experiences. The information presented here can inform future policy decisions based on the past and the current actions during the transition of courses to online formats and the transformation of classroom experiences to online interactions of various types.

We begin the white paper by presenting an overview of the traditional role the CTLs and equivalent entities have played since their inception in educational institutions. We then describe how this role evolved into academic first responders in the context of the COVID-19 pandemic, and trusted educational leaders for the transformation of education in a digital and Artificial Intelligence era.

The white paper continues with a thorough discussion about the challenges the centres faced since the eruption of the pandemic in March 2020 and the ones they anticipate in the coming semesters. These challenges vary widely and have stretched the Centers' (CTLs) capacity in many directions. Some of the challenges were encountered immediately at the start of the lockdowns, while others have presented themselves more recently. Most CTLs identified distinct phases that they are experiencing as they assist higher education institutions over time. In addition to these timeframes, the CTLs also identified challenges that are not a product of a given phase of the transition. These challenges either existed long before the pandemic and were exacerbated by the current context or have persisted throughout the transition. The challenges the CTLs described can also be characterized by issues encountered within the centres as they determine how to work efficiently and effectively remotely as a team, as well as those related to their mandate. The discussion ends with la list of concrete examples of actions CTLs took to face these challenges.

In addition, the white paper provides detailed information on one major action taken by all; that is, publicly sharing an abundance of resources to support faculty and students during the online transition. These resources focused on: 1) the use of technology; 2) various pedagogical approaches; 3) ways to achieve equitable learning experiences for students; 4) socialization and well-being; and 5) strategies for working with faculty and students.

The white paper also spotlights resources relevant to equity. From the total of 68 universities and educational institutions we examined, only 2.6% provided a definition of equity. In these cases, equity was defined as an approach that considers individuals' unique characteristics to provide them with differentiated support and promote equitable opportunities. In 43.6% of the analyzed cases, other equity-related terms were used by some universities: accessibility, inclusive pedagogies, inclusion, diversity, accommodation, equality, or a combination of terms. Recommendations included *creating* accessible materials, choosing adequate digital technologies, recording lectures for asynchronous

availability, captioning videos and audio content, planning for flexible timing for participation and assessment, and providing financial support.

The last section of the report shares lessons learned and recommendations from the centers to all centers. Added to the recommendations are commentaries by experts and researchers from the field with ideas and approaches geared to the current mandate of the centers to help them better face what is coming. The recommendations urge taking care of the team so the team can take care of faculty, working smarter rather than harder, practicing empathy with teammates and faculty, encouraging faculty to practice empathy with their students, being practical to conquer the assessment beast, and adopting a proactive leadership.

Teaching and Learning Centre, Teaching and Learning Services, Center for Teaching Excellence, Observatory of Educational Innovation, Teaching and Learning Support Service, and other titles that share an equivalent mandate in an educational institution are hereafter called Centres for Teaching and Learning (CTLs).

Professors, instructors, lecturers, adjunct faculty, limited-term appointment (LTA), extended term appointment (ETA) are hereafter called faculty or faculty members.

This white paper uses the Canadian English spelling except in the commentary pieces where it respects the guest authors' preference.

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INTRODUCTION

Today the educational community as a whole faces a universal challenge: to ensure equitable and quality education as well as effective and efficient evaluation of student learning in hybrid, flexible or 100% distance modalities for their students while also planning for the post-COVID-19 pandemic era. Centres for Teaching and Learning and equivalent services and their teams of instructional designers, teaching and learning experts and multimedia developers play a pivotal function in addressing and overcoming this challenge.

Until the early weeks of March 2020, nobody could have imagined the extent of the change that COVID-19 would impose on educational institutions.

Until the early weeks of March 2020, nobody could have imagined the extent of the change that COVID-19 would impose on educational institutions. On March 11, 2020, the WHO declared COVID-19 a pandemic (Ducharme, 2020), which meant that the virus had spread worldwide and it would affect every sector. To prevent contamination on campuses, universities and colleges decided to close, citing an unprecedented situation and surreal times. By March 19, 2020, over 100 countries closed their educational institutions (UNESCO, 2020). The initial closure was planned to last two weeks, i.e., enough time for professors to shift to an emergency remote teaching mode (Hodges et al., 2020) in order to complete the Winter semester. Some institutions without the two-week closure had to figure out and implement the transition over one weekend.

Tech Companies to The Rescue

The move to online courses involved deploying every technology available including learning management systems, course management systems, collaborative tools, social media, media production tools, and even radio, television broadcasting in some countries (World Bank, 2020). Tech companies that offer digital technologies geared towards education users spared no effort to offer services to help half of the planet's students move to online learning during the COVID-19 shutdown. These organizations provide learning management systems (LMS) (ex. Moodle), video conferencing tools (ex. Facebook Rooms, Google Meet, Zoom, Microsoft Teams), online collaboration tools (ex. Miro, Mural), project management software (ex. Trello, Teams, Slack), assessment tools (ex. Respondus), messaging platforms (ex. Whatsapp, Discord), screen capture software (ex. Loom, TechSmith, Yuja), social networking sites (ex. Facebook Rooms), content creation platforms (ex. Adobe), e-commerce and cloud solutions (ex. Amazon), telecommunication companies (ex. Atlantic broadband, Charter Communications, Comcast), MOOC platforms (ex. Coursera, EdX), education suites (ex. Google For Education), 3D modelling (ex. Tinkercad), language learning tools (ex. Duolingo), educational gaming (ex. Kahoot, Unity Technologies), interactive virtual labs (ex. Labster), interactive presentation tools (ex. Mentimeter), educational content platforms (ex. Khan Academy, Space Foundation), and VR training platforms (ex. UbiSlim).

Almost every category of educational technology service provider adapted their services to help learning to move online through three mechanisms: 1) offering free or enhanced services and expanding support,

2) creating more resources, or 3) integrating features to other systems with accessibility in mind (Appendix 1).

Microsoft offered a free 6-month trial with all functionalities for its Microsoft Teams platform (Teams Licensing for Education, 2020). Google for Education was offered for free for educational institutions with an enterprise-license-level video and virtual classrooms were offered for free for educational institutions. Slack offered free upgrades to its standard or plus plans free-of-charge for three months (Slack, n.d.). Respondus (n.d.), a company specialized in online assessment tools, offered a free 2-month unlimited-use license for higher education. 3D Game-creation company Unity Technologies provided free access to the premium version of its Unity platform, including added live sessions with experts and 350-plus hours of tutorials, hands-on projects, and courses for game developers (Unity Technologies, n.d.). To further support new connectivity needs, some telecommunications companies contributed by creating free WIFI hotspots and providing free broadband access to households with students ranging from K-12 to the Higher Education sector (Charter Communications, 2020).

With the resulting surge in use, companies had to improve their infrastructure to ensure the quality of their products and services wouldn't be compromised. Zoom experienced an increase in the number of daily users of the platform from 10 Million in December of 2019 to approximately 200 Million users in March 2020 (Yuan, 2020). To ensure a smooth transition, companies like Zoom and Dropbox had to acquire and allocate more equipment and increase the number of network connections and rates of data transfer (Sverdlik, 2020).

Tech companies created a plethora of additional resources for educators. From quick how-to guides, resource lists, comprehensive self-paced training, to live webinars, companies provided tailored and free-of-cost training to empower educators. For example, the language-learning platform Duolingo prepared guides to help educators mentor students to learn languages at home (Blanco, 2020), WhatsApp created resources to help educators engage with students, share assignments and deliver lessons through text and audio (WhatsApp Inc., n.d.), and Trello contributed by creating resources to help educators plan, organize and collaborate on coursework and curriculum (Trello for Educators, n.d.).

> However, a quality and equitable online education requires more than a sprint by tech companies to make required digital technologies available.

TechSmith, the makers of Camtasia and Snagit, aimed to improve ease of use, accessibility and student engagement. They created resources to better explain how to use their functionalities for the creation of teaching resources and to demonstrate how various systems were integrated into their software or how their software can be integrated into learning management systems (TechSmith, n.d). For example, Knomia, which is integrated to Camtasia, allows users who do not have administrative rights on a computer to install a lecture capture tool that can record a section of their screen and add quizzes directly. The fact that Knomia can be integrated to any LMS or Zoom made it work seamlessly for users. Once videos are created, Knomia allows users to start conversations in videos either to give feedback or to take notes. In addition, the system can be easily

integrated into various LMSs including Blackboard, Moodle, Canvas and Brightspace, and ensures accessibility through a text-to-speech engine to do screen captioning and offer audio description support. This is similar to Yuja (Nguyen, 2020) which offers many accessibility features to lecture capture, live streaming, video conferencing and test proctoring that can be integrated directly in LMSs.

However, a quality and equitable online education requires more than a sprint by tech companies to make required digital technologies available.

Emergency Remote Teaching

Although professors are experts in their field, many have not systematically developed expertise in teaching and learning, and few face-to-face professors have the required expertise in the research and practice that supports online teaching and learning, let alone using digital technologies in their classrooms. Expecting all professors to access and employ a new set of skills in the middle of a crisis was unrealistic. They required support in online education, instructional design, educational technologies, ethical, critical, responsible, equitable and inclusive use of digital technologies, and learning innovation.

There were reports of pedagogical confusion —professors had to complete activities typically supported by instructional designers, and students became guinea pigs (Melançon, 2020). Some professors were frustrated they had to record their lectures and some students felt disengaged because of the lack of physical presence (Lee, 2020) or because they had to be monitored by online exam proctoring software to prevent cheating (Flaherty, 2020). The crisis led many faculty members to revert into a very deep conservatism. It was their attempt for a shred of control in a world drowning in uncertainty. Their teaching approaches presented a great degree of fidelity to face-to-face approaches and the assessments approaches they adopted were problematic. Undergraduates' satisfaction dropped sharply as many struggled to stay motivated. There was also a correlation between students' level of satisfaction and the frequency of the technology problems they experienced (Digital Promise, everylearner everywhere, & Tyton Partners, 2020).

> The crisis led many faculty members to revert into a very deep conservatism. It was their attempt for a shred of control in a world drowning in uncertainty.

This prompted many active members of the academic community to debate the quality of education in a time of crisis and to coin the term *emergency remote teaching* "as a common alternative term used by online education researchers and professional practitioners to draw a clear contrast with what many know as high-quality online education" (Hodges et al., 2020), as "it's not fair to expect the same outcomes if you don't lay the same foundation (…) if you don't have a deliberate design process, you can't expect the same results in the end" (Manfuso, 2020).

Inequity as Never Before

Every aspect of teaching and learning in educational institutions was disrupted and inequity rose as never before. To understand the full extent of inequity, one must consider the definition of equity in education. As per OECD (2012):

> Equity in education means that personal or social circumstances such as gender, ethnic origin or family background, are not obstacles to achieving educational potential
> (fairness) and that all individuals reach at least a basic minimum level of skills (inclusion). In these education systems, the vast majority of students have the opportunity to attain high-level skills, regardless of their own personal and socio-economic circumstances.

Brian Beatty, Associate Professor of Instructional Technologies in the Department of Equity, Leadership Studies and Instructional Technologies at San Francisco State University shares a working definition. He posits that:

> Equity in higher education means that all students are able to achieve equal learning outcomes as they are supported by institutions, faculty, and other systems to engage in the learning process. All students are able to receive the financial, social, and academic support and guidance they need to succeed in the institutional programs, thus enabling lifelong success as well. All students are given access to appropriate and effective learning opportunities - instructional resources, activities, interactions and evaluative assessment - which are differentiated according to their unique sets of characteristics and needs.

In the best conditions, universities often reproduce the worst societal inequities, of which they may not be aware. The COVID-19 crisis exacerbated inequalities (Sharma, 2020) and inequities (Harvard University, 2020) to their full extent.

This was evident in student quarantine experiences (Casey, 2020). Some simply returned home and were positioned to be able to continue working as they did before the pandemic. For others who were evicted from their university dorms (The Canadian Press, 2020), finding space to work in small apartments, bridging the digital divide (internet speed, data limits, access to a good computer) (Desrosiers, 2020), worrying about their families abroad, and risking unemployment sent them to rock bottom. They found themselves in a serious financial crisis. For some, sitting in front of a computer and Zooming the end of the semester was not an issue, but for others staring at a screen for long hours was not sustainable. Whether it was because of postural problems, issues with their vision, or children at home who demanded their attention, they were strained and unable to focus effectively on their coursework.

These inequities were compounded by the traditional inequities have yet to be resolved (Frantz, 2020): difficulty of access for low-income students, completion rate for first-generation students, non-completion for independent students, ableism (Falkner, 2020) and expectations of students performance (Maslen, 2020).

To tackle the inequities, educational institutions had no choice but to ensure accessibility through various channels and accommodations (Alasuutari, 2020) as they designed remote learning experiences. Was it enough? During the COVID-19 shutdown, as Inside Higher Ed reports, many of the accommodations and challenges faced by students were addressed in the moment by faculty and support staff, but educational institutions are still largely unaware of the full array of challenges their student body faced and how to best plan for them in the post-pandemic era.

Centres for Teaching and Learning as First Responders

Most universities or colleges have Centres for Teaching and Learning or equivalent services that focus on the pedagogy of teaching and learning. These centres generally work with a limited number of professors who elect to innovate and request expert support. In the midst of the pandemic, they became the 'first responders' to support the pedagogical and digital transformation of all courses. They became the "academic heroes of COVID-19" and proved to be more than meets the eye.

In over a thousand years of history, higher education has not gone through disruption of this magnitude. This strained Centres for Teaching and Learning and equivalent services but also highlighted their essential role and the role of their teams of instructional designers, teaching and learning experts and multimedia developers (Maloney & Kim, 2020) who, overnight, were dubbed the "sherpas of online learning teams" (Decherney & Levander, 2020).

In over a thousand years of history, higher education has not gone through disruption of this magnitude. This strained Centers for Teaching and Learning and equivalent services but also highlighted their essential role and the role of their teams of instructional designers, teaching and learning experts and multimedia developers.

While some used to perceive them as mere support, they showed beyond doubt that they were "crucial to the value proposition of higher education institutions" (Eaton, 2020). Recognizing their role and capabilities, the expectations from the instructional designers within these teams grew to include creating accessible, equitable and inclusive course design models (Pilbeam, 2020). They were solicited by a large population in urgent need of their services. They were requested to motivate, guide and equip scholars from all disciplines as they adapted and redesigned their courses and programs. This entailed "a smart pedagogic overhaul" (Martin-Barbero, 2020).

The urgent need for these centres and their teams will persist until the war against the COVID-19 pandemic is won, and the core of education is transformed.

COVID-19 As Accelerator of Higher Ed Transformation

In fact, the global COVID-19 pandemic has accelerated the digital transformation of higher education. Not only did it facilitate knowledge democratization (Chyi, 2020), it triggered a paradigm shift towards virtual

teaching and remote working. It forced educational institutions to focus on their short-term operational continuity while ensuring their long-term viability (Martin-Barbero, 2020).

COVID-19 provoked a long-awaited disruption to higher education, pivotal to ensuring students are well equipped for the future of work in a digital and artificial intelligence era (Pulsipher, 2020). The wide scale transition from high-cost, degree-based focus, and one-size-fits-all education to a more affordable and personalized educational experience has started (Scharfenberg, 2020). The established presumptions that face-to-face instructions are superior in quality to online learning have been reckoned (Damm, 2020) and many institutions are re-evaluating whether the traditional physical co-presence was worth the cost (Stevens, 2020). Moving forward, incremental changes towards more hybrid and online learning are expected (Kim, 2020; Veletsianos, Johnson, & Seaman, 2020). Chatbots and predictive analytics are on the menu, too (Scharfenberg, 2020).

The alliance between world universities, empowering one another to better serve students and faculties is promoted (Benhayoun, 2020), so are collaborations between institutions in terms of course offerings, inclusive and flexible approaches to learning. There is speculation around the creation of innovative programs stemming from strategic partnerships between tech companies and higher ed institutions (Walsh, 2020). The relationship between the educational institution and students is being advised to evolve into a "lifelong relationship centered on upskilling and capacity building" (Dede & Richards, 2020). In fact, many educational institutions are reconsidering the specialties of the majors they offer, the time to complete them, the importance of human interactions, the access, affordability, and flexibility of their programs, the modalities to deliver instructions and to facilitate learning, and their grading systems (Kimbrough, Cauce, & Stanley, 2020).

OBJECTIVE AND CONTENT OF THIS WHITE PAPER

This white paper illuminates how Centres for Teaching and Learning, and equivalent entities addressed and plan to address trends and issues in digital learning in the context of educational disruption caused by COVID-19.

We begin by presenting an overview of the traditional role the CTLs and equivalent entities have played since their inception in educational institutions. We then describe how this role evolved into academic first responders in the context of the COVID-19 pandemic.

The paper continues with a thorough discussion about the challenges the centres faced since the eruption of the pandemic in March 2020 and the ones they anticipate in the coming semesters. It also lists concrete examples of actions they took to face these challenges. In addition, we provide detailed information on one major action taken by all; that is, publicly sharing an abundance of resources to support faculty and students during the online transition. This discussion spotlights resources relevant to equity.

The last section of this paper shares lessons learned and recommendations from the centres to the centres in addition to commentaries by experts and researchers from the field with ideas and approaches geared to the current mandate of the centres to help them better face what is coming.

The appendixes contain 1) an inventory of tech companies that modified their services in the context of the COVID-19 pandemic to support online learning, 2) the methodology used to conduct the research, 3) the methodology used to prepare the Panorama of Publicly Shared Resources to Support the Transition of Courses Online During The COVID-19 Pandemic, 4) an inventory of publicly shared resources to support the transition of courses online, and 5) an inventory of resources that share ways to achieve equitable learning experiences for students.

CENTRES FOR TEACHING AND LEARNING: FROM OPTIONAL SERVICE TO FIRST RESPONDERS TO SUPPORT THE PEDAGOGICAL AND DIGITAL TRANSFORMATION OF COURSES, TO LEADERS WITH A SEAT AT THE TABLE.

Who Are CTLs?

Centres for Teaching and Learning (CTLs), also known as Teaching and Learning Centre, Teaching and Learning Services, Center for Teaching Excellence, Observatory of Educational Innovation, Teaching and Learning Support Service, among other titles that focus on pedagogy and innovation, exist in most educational institutions and have one primary mandate: support faculty members in their teaching. Their role is to have a direct impact on student learning and the quality of education in the institution they serve.

The CTLs who participated in this discussion represent a wide spectrum of structures, allocated budgets, positions and mandates, team sizes and skill set of professional faculty/staff, and capacity and levels of readiness to support online learning. In addition, these CTLs also varied in how faculty, administration, and other functions within the institution perceive the value of their services.

For example, the structure of the CTLs determines their function within the educational institution. It also impacts the level, amount, focus, variety and diversity of the support they offer. A small CTL may consist of a limited number of staff who focus on supporting faculty with knowledge and/or advice on in-class pedagogy. Others include technical capacity as well. For example, some can support limited multi-media production and limited online learning experiences, while others have extensive digital technology and production studios to facilitate the creation of fully online learning. A number of CTLs are organized into multiple specialized units, such as pedagogy, multimedia and Information Technology services. Regardless of the size and structure, the strategy and strength of their collaboration with other entities within the educational institution is also a determining factor in the magnitude and usefulness of their capabilities. Their mandate expands with their capacity to support different types of learning.

Their responsibilities may encompass supporting faculty across all stages of designing, developing and delivering all modalities of instruction, including in-class, hybrid, and synchronous and asynchronous online learning. They are expected to support faculty in creating the best learning experiences for their students regardless of the modalities chosen. They are responsible for educational technology support, pedagogical support, in all shapes and forms, as well as instructional design. CTLs also design, develop and deliver faculty development activities, support innovative pedagogical initiatives, orient new faculty to the institution, support/facilitate/participate in curriculum design and accreditation, and create learning and teaching strategies. Some very comprehensive centres even focus on the holistic development of their faculty and include faculty well-being. Few, yet, assist in ensuring that curriculum is valuable to the students when they exit to become contributing citizens.

Some of the CTLs have responsibilities that go well beyond support of teaching to support the entire learning experience. For example, a number of CTLs design both the physical and the digital learning

environments from a holistic perspective. They are involved in classroom design and redesign, choosing furnishings, colors, finishes, and lighting, as well as selecting the array of digital tools that are used to support teaching and learning. Others manage/operate the various communication platforms and learning management systems that are used in teaching and learning. Some CTLs support faculty and students with using technologies and software, by loaning equipment and providing training on its use. Some scan developments in both the pedagogical and techno-pedagogical landscape to stay up to date and inform faculty. A number of CTLs focus on experiential learning, or active and collaborative learning within innovative learning spaces.

The size of the teams of the CTLs who participated in this discussion ranges from three individuals to a total of about 150 in the two largest CTLs. Staff titles may include directors, deputy directors, administrators, office coordinator, office manager, instructional designers, web designers and developers, programmers, multimedia production professionals, curriculum developers, and faculty who maintain their faculty position in their departments and also support the work of the CTLs.

Some teams include faculty fellows. These fellows understand the content and the specific challenges of teaching in their discipline. They are able to model best pedagogical practices and demonstrate examples to support pedagogical innovation initiatives. These superstar faculty have credibility with faculty and are able to overcome resistance in situations where non-experts or outsiders who do not understand the content might founder.

Suddenly First Responders

When the COVID-19 pandemic hit in March 2020, educational institutions were forced to react. The lockdown was enforced, and all ongoing winter courses had to move online so that students could complete the semester. Overnight, the CTLs became first responders. Technology was the vehicle required to ensure the delivery and the facilitation of classes online, but technology alone is an empty vehicle without the content and the pedagogical approaches of faculty. CTLs were charged with ensuring that some sort of effective teaching was happening and that the faculty were able to help their students complete the semester.

Overnight, the CTLs became first responders. Technology was the vehicle required to ensure the delivery and the facilitation of classes online, but technology alone is an empty vehicle without the content and the pedagogical approaches of faculty.

The level of readiness of CTLs to meet this challenge was influenced by the prior experiences they had in supporting online learning before the pandemic. A couple of CTLs had no experience with online learning. Some CTLs had already started building the bridge between their in-class team and the online learning department. Because of the digital transformation many had already started to promote hybrid course design to faculty or embarked on a blended teaching initiative. Some had supported faculty members in converting their courses fully online. Many of the CTLs had the infrastructure for online teaching and a

number of competent staff. They had created or curated training resources to help faculty develop blended courses. This preparation provided a foundation to build on to develop emergency remote courses.

CTLs in conflict areas where shutdowns happened in the fall semester because of manifestations or other kinds of turbulences were already undergoing their planning for a sustainable quality education in contexts where campuses were no longer accessible, safe or functional.

Some centres knew things were never going to be normal. They were following the evolution of the COVID pandemic in China and then in Europe. They knew that it was going to hit them and that they had to be ready to embrace what is coming and to make the most out of it.

Despite some prior preparations, none of the CTLs were equipped, capable or ready to move all the winter semester courses online in record time while ensuring the quality of these courses, or to smoothly administer the end of the semester evaluations online while avoiding inequity incidences.

However, CTLs became educational institutions' first responders. In a context where information was inconsistent and time was short, they spared no effort to rescue the winter semester. This was no small feat: Mandates and missions were modified; workloads became insanely heavy and schedules inhumane. Many had to adapt based on the jurisdiction they were in, which made a huge difference since some institutions closed for two weeks while others only had the weekend to figure things out. The two weeks gave CTLs some time to breathe, compose themselves, do a flash upskill and plan based on public health and institutional guidelines. Teams were running on adrenaline. There was no second-guessing. All were committed to finishing the term. More than one CTL likened the effort to building the plane while they were flying it.

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A couple of CTLs became the catch-all to everything that had to do with online learning and with faculty, even issues related to faculty affairs.

As faculty demand for training and information ramped up, the CTLs had to find ways to scale their support to answer these demands. Some of them had to shift from supporting 250-300 online courses to 5000 courses. They also had to compress their typical processes and timelines: The CTLs who had the facilities and the expertise to build online courses might have previously spent up to three months to develop a well-designed online course with an eager and engaged faculty member. Many had to develop courses and professional development workshops in the span of a weekend.

CTLs shared that during the lockdown they achieved an unprecedented response speed to the exponential increase in requests for support. Emails from faculty and students were dispatched and answered and problems were solved within 24 hours.

The CTLs assigned teams to advise faculty and to help them move their courses online. They developed templates, webinars, and other resources to support faculty. They also critically examined the varied technological solutions faculty were proposing and gave them recommendations and guidance.

The teams also created and curated content so that faculty and students could help themselves during the transition. They created videos, wrote content, enhanced their websites, structuring them in such a way to simplify information and make it accessible and easy to find. Some CTLs created a workflow for faculty to follow and supported it with a series of instructional guides and videos.

CTLs also considered the context for online delivery. They recommended that faculty focus their instruction and simplify it if possible. They suggested that faculty consider students' cognitive load, stress levels, and personal situations. They emphasized the importance of regular and consistent communication. They also worked to heighten faculty awareness of risks of inequities. The pandemic made even more apparent the disparities in educational access for students in certain contexts. Many were already experiencing things such as food insecurity or microaggressions in the classroom. Students enter educational institutions with very different levels of social capital or linguistic capital that can impact performance in classes. But the pivot to online learning revealed other inequities. Some students, for example, did not own a laptop and were attempting to complete online course work on their smartphones. Some CTLs mounted a massive effort to raise funds to purchase laptops and ship them to students.

Some CTLs went beyond their role as pedagogical consultants. They reassured faculty and absorbed their stress while dealing with their own pandemic-induced anxiety. A couple installed what they called a care model or healing-centered engagement.

In addition to supporting faculty and students, these CTLs operationalized executive decisions and policies into practice and translated grassroots needs into administrative requests. They had to be assertive, regardless of the administration rank they were communicating with, to make decisions quickly and act fast. They also had to establish a productive collaboration with other institutional departments in record time and to coordinate tasks to avoid overlaps. Successful first responses emerged from effective and efficient communication and collaboration between CTLs and human resources, the library, IT services, Access Centres, Student Success Centres, Student Affairs, Offices of Equity and Inclusion, to name only few.

Some CTLs went beyond their role as pedagogical consultants. They reassured faculty and absorbed their stress while dealing with their own pandemic-induced anxiety. A couple installed what they called a care model or healing-centered engagement. They emphasized details such as the faculty's non-ergonomic desks and chairs. They brought yoga classes to faculty, did mindfulness sessions, and looked after faculty

who were feeling isolated by organizing virtual gatherings and concerts leveraging talents from the community.

This continued during the summer of 2020.

The Immediate Future

As they plan for the fall semester, some institutions have already made decisions on the modality of their classes. They have anticipated a number of contingencies, planned several potential scenarios and made sure they are ready to readjust as the situation develops. Their priorities are to structure the programmes so that students are well supported, and that faculty members have the necessary tools and techno-pedagogical resources to support the pedagogical engineering of their course. For many CTLs, the next semester represents stage two of the development of their website and resources, recognizing the need to continue to support the transition to digital learning to the scale of the institution.

While some plan to do fewer workshops, they will expand their webinars and resources in regard to interactive learning, alternative assessments, and equity, and monitor how movements such as the Black Lives Matter and anti-racism are impacting students learning, to give support when required. They will also focus in particular on faculty who are less tech savvy to provide them immediate, substantive guidance.

Going Forward in The Digital Transformation of Courses

CTLs affirmed that online learning and flexible modalities of teaching are here to stay. This is a transformational moment for many educational institutions worldwide. CTLs will continue to help faculty be flexible and responsive in terms of modalities, pedagogical approaches, assessment strategies and support to students. The relationships they cultivated with faculties since the pandemic will persist, and they will nurture them. Faculty members will require support in the coming terms and now they know who they can turn to.

CTL website statistics indicate that the CTLs' pages experienced an exponential rise in hits. CTLs report a shift in faculty attitude; faculty pay more attention to their recommendations now than in the past. While they used to ignore the CTLs' emails and invitations, now they appreciate them.

Many CTLs have discovered that there were some surprisingly good results when they empowered faculty members to accomplish the design and development of their courses more independently. Going forward, they are shifting from taking significant responsibility and doing things for faculty to partnering with them, empowering them to understand and effect good practice. Further, some CTLs will continue to include faculty members as a very valuable asset in their team and involve them in their discussions about the solutions to better support faculty.

In fact, many practices emerged from the crisis to support the digital transformation of courses and CTLs expressed their determination to maintain them as they moved forward. For instance, they will sustain their partnerships with other institutional entities beyond the pandemic.

> Many CTLs have discovered that there were some surprisingly good results when they empowered faculty members to accomplish the design and development of their courses more independently.

The crisis fostered a faster way to work across cross-functional teams more effectively. Teams now have a much greater insight on the scope and breadth of the work that is happening than before, which used to be delegated to individual teams working in silos. CTLs can better align resources and will conduct more inclusive and diverse meetings with their cross-functional partners to effect change together.

While before the pandemic some CTLs had difficulty obtaining metrics and understanding the impact of the support they provided to faculty they were helping, and for what specific needs, now they have much greater insight into this data. This will inform their future decisions and directions.

They Shined, Now Are Ready to Lead

Several CTLs shared that it was their moment to shine, to show how relevant they were. They seized the need to respond to the pandemic as an opportunity to demonstrate value and to show how critical their capabilities were to faculty and students at their educational institution. These CTLs were often either aligned with other functions, invisible, or taken for granted as they provided value with little recognition for the skill or the workload. Many reported they were considered a compliance house or optional service. These perceptions have changed since the lockdown. CTLs have gained unprecedented visibility for their services and capabilities.

Senior leadership now see their value. Decision-makers now consult with them. In some cases, provosts and certain higher administration groups were not always receptive to their ideas or recommendations. Now they are at the center of many of the strategic conversations about teaching and learning. With the pandemic, the CTLs have been directly implicated in numerous information flows from the provost and the president. A lot of decisions were directed through the TLCs, and many now have a seat at the table.

CTLs expressed their worry about the fact that all educational institutions are going to be under significant financial stress. There will be some budget pressure and teaching and learning centres are likely to be impacted. The big question some have is how CTLs will be targeted in the whole financial contraction element, the cost saving side of the house. They believe that the answer to this question will be dependent on how CTLs are structured and how updated and effective their approaches as they move into the next phase. They have to be prepared for the post pandemic during the pandemic to stay relevant and add value.

In the past, many teaching and learning centres tended to be reactionary. Moving forward, they must adopt a proactive leadership role, bringing the best practices in the scholarship of teaching and learning to faculty. In some institutions, this role is played by education faculty, but not every educational institution has an education faculty or an education faculty with a focus on higher education pedagogy. CTLs foster the expertise in higher education pedagogy and facilitate the dissemination of the scholarship of teaching and learning. To fulfill that function, these expertise spaces need to take more responsibility for the proactive leadership that is required in higher education and that requires a demand to challenge boundaries and to encourage change, either through policy or by practice.

Moving forward, CTLs must adopt a proactive leadership role, bringing the best practices in the scholarship of teaching and learning to faculty.

Many see that there is an urgency to start reinventing themselves. The crisis opened up some doors that previously would not have been opened. There will be no going back after this.

CHALLENGES IDENTIFIED BY CTLS AND EXAMPLES OF CONCRETE ACTIONS THEY TOOK SINCE MARCH 2020

The CTLs we spoke with identified many challenges that they have dealt with since the start of the pandemic. These challenges vary widely and have stretched their team's capacity in many directions. Some of the challenges were encountered immediately at the start of the lockdowns, while others have presented themselves more recently. Most CTLs identified distinct phases that they are experiencing as they assist higher education institutions adapt to the requirements of the current time. These phases can be broadly separated into four timeframes:

Phase 1 – End of Winter semester – Mid-March to April 30
Phase 2 – Summer – May to August
Phase 3 – Fall semester – End of August to December
Phase 4 – Winter semester and beyond – 2021 +

In addition to these timeframes, the CTLs also identified challenges that are not a product of a given phase of the transition. These challenges either existed long before the pandemic and were exacerbated by the current context or have persisted throughout the transition.

The challenges the CTLs described can also be characterized by challenges encountered within the centres as they determine how to work efficiently and effectively remotely as a team, as well as those related to their mandate. The following sections describe these challenges as they were encountered.

Phase 1 – Completing the Winter Semester

The first phase of the transition to online education in response to COVID-19 was marked by reactionary measures as CTLs were required to assist higher education institutions swiftly bring all courses online and complete the semester with as little disruption as possible. Most CTLs described this phase as extremely chaotic as they struggled to identify what had to be done and how to accomplish it to such a scale and with so little time. As a result, although centres were keenly aware of concerns surrounding quality of instruction as they assisted in the rapid shift, the circumstances did not allow for them to address these issues at this time. As such, during this phase, the CTLs focused primarily on setting up their team to work efficiently and effectively at home, providing faculty with the basic tools and training to finish their term courses online, and managing issues around final assessments such as written or forced-choice exams, lab activities, and internships.

Internal Challenges

Establishing a remote working network and good coordination within the team

The first challenge identified by the CTLs was to establish efficient communication protocols among team members and provide the team with the tools to work remotely. In many cases, the CTLs did not have software that was conducive to efficient remote working. Therefore, the first priority was to select an

appropriate platform for remote working, which involved procuring the appropriate software licenses, integrating the new software into their existing system, quickly training their team to use the new software, and resolving compatibility issues with personal computers. Once this was accomplished, the next challenge CTLs identified was establishing effective project coordination among team members to ensure that each person was working on the appropriate task at the correct moment. This required exceptionally good communication on the part of each team member, which CTLs reported was a challenge as team members were also dealing with making adjustments in their personal life (e.g., caring for children and elderly parents).

Role shift and identification of available resources

Prior to COVID-19 pandemic, the mandate of most CTLs was to promote and support innovation in teaching, whether it be on campus or online. The primary focus was ensuring high quality education by providing faculty with the coaching, training, performance support, and tools to adopt effective teaching strategies to improve the student experience. This mandate had to shift dramatically during this transition, particularly during this first phase.

Due to the urgent requirement to finish the semester (which was already more than halfway complete), CTLs had to focus on swiftly moving courses online, sometimes at the cost of the quality of the student experience. This necessitated a shift in their approach, prioritizing quantity over quality, which is normally contrary to their standard. As such, the teams had to reassess their capabilities and their resources in order to determine what they would and would not be able to accomplish. This task was made more complex by the urgency of the situation with some CTLs required to make decisions about goals, priorities, staff activities, and technical infrastructure in the short span of a few days.

During this resource assessment task, it became evident for many teams that they simply did not have enough staff to accomplish such a colossal task. They therefore began recruiting and hiring new staff members, which presented another set of challenges. CTLs were faced with recruiting new employees at a time when lockdowns were just beginning, as well as swiftly onboarding these new members online, something they had never done before. Additionally, as many higher education institutions were seeking new employees with the same areas of expertise, many CTLs experienced significant challenges in finding available qualified professionals. Some CTLs thus recruited co-op students or volunteers, which introduced the challenge of coordinating these individuals to make sure they were working efficiently and effectively. Adding more people to the team did not necessarily mean they were able to accomplish more, however, as new members often lacked the experience or knowledge of the institution to work independently, requiring the assistance of experienced staff, who were already over-committed.

Challenges Related to Mandate

While making sure their teams were prepared for the coming challenges, CTLs were also taking stock of the situation and attempting to establish a priority list of requirements to be addressed. The CTLs reported globally that the information they were receiving from governments and upper administration was often inconsistent, which required them to make decisions based on their best judgment. Furthermore, CTLs

had to know what each department's requirements were as each discipline may have different challenges and requirements. Some programs, for example, have accreditation requirements leading to certification by external orders (ex: nursing, psychology, teaching, etc.). Most CTLs identified four primary requirements that called for action in order to finish the Winter semester successfully: moving courses online, end-of-term assessment, practical labs and internship completion, and ensuring equal access to all students.

Moving courses online

The first and most obvious requirement was rapidly moving courses online. In normal circumstances, the CTLs reported they would take up to 8 months working individually with faculty to adapt a course to an online context and to ensure faculty had the necessary skills and tools to successfully teach online. The number of courses that required to be moved online within a one- to two-week span meant that this lengthy approach was simply not possible. Not only were CTLs unable to work with faculty individually, but the focus on sound instructional pedagogy was impossible. Many professors--including some who had only taught face-to-face and had not used online learning systems as part of their courses --required training in the very basic skills needed to move critical course components online and communicate with students via technology. Therefore, centres were required to create training guides and videos to help professors work as independently as possible to continue to deliver courses to students with little to no interruption. These instructional guides and videos had to be clear and easy to understand so that faculty could access the training independently and implement the online course(s) with little assistance from the CTL staff.

Unfortunately, resistance from some faculty made this transition to online teaching more challenging. While CTLs acknowledged that the majority of faculty were cooperative in the shift to online teaching, some were resistant. One CTL mentioned resistance from faculty who were not willing to lecture online because of a law in their country that protects their right not to disseminate their image online. Others mentioned how some faculty insisted that their course could not be taught online due to the nature of the discipline, a claim which was found to be inconsistent with other faculty already successfully teaching the same courses online.

On the other hand, CTLs also reported that they encountered challenges helping very motivated faculty, as they required assistance in distilling the information that was coming to them from multiple sources. Some faculty were taking an excessive amount of training, sometimes becoming overwhelmed by the incoming information, and required the CTLs' help to sift through the information and determine what was relevant to them.

Another challenge was addressing the requirements of part-time faculty. As these faculty often have other employment during the day, CTLs had to determine how to best communicate with them and ensure that they had access to training and support outside of normal business hours.

Assessment

The second major challenge of this first phase was determining how end-of-term assessments could be adapted to the online context. Many faculty members had planned to give final exams and insisted that this remain the case regardless of the move online. This raised several concerns for CTL staff, faculty and students alike.

Many faculty members did not know how to administer exams online and would require training. Faculty were concerned that students may cheat or plagiarise and did not want students permanently having record of their exams (via screenshots). Online proctoring was explored but found to be costly and problematic as students expressed concerns about their privacy. There were also concerns that some students may have difficulty doing synchronous online exams due to limitations of internet access, less-than-ideal home conditions for testing (e.g., caring for children, sharing one computer with multiple people), and taking exams across time zones. While CTLs encouraged faculty to modify their final assessments to more conducive formats for online contexts, they found that many faculty members did not have the knowledge and skills to do this effectively.

Labs and internships

The third major challenge was the issue of labs and internships. Many of the science disciplines rely heavily on labs for teaching and assessment purposes. These labs require specialized materials and equipment not typically available at home, as well as in-person supervision. Some virtual lab simulators did exist; however, they were costly and had to be thoroughly assessed before being adopted.

Internships in progress were also a challenge, as many programs require practical internships for accreditation purposes. Hands-on internships in the medical field are a prime example. Although online simulators exist, they are not considered by faculty and accreditation boards to be acceptable substitutions for hands-on experience.

Access to courses and services

It quickly became evident to the CTLs that access was a significant problem for some students. Students were working from home, and for some students, this meant returning to their home country. From home, many students lacked access to a personal computer. CTLs learned that many students had been using computers on campus in labs or the library. These on-campus resources were no longer accessible. Some students lacked Internet access at home and used campus or restaurant Wi-Fi. Those who did have Internet at home often did not have the bandwidth to support synchronous video conferencing for courses.

The closure of campus services like the libraries also presented access problems for some students. Resources such as textbooks in library reserves were no longer available to those who relied on these services because of financial limitations. Students with disabilities faced new barriers to access as

faculty finding their own solutions to online teaching were unaware of accessible online requirements, making many online resources shared with these students inaccessible to them.

Other challenges

In addition to the above challenges, CTLs reported many other challenges that hampered the progress of their efforts. Among them was communication. CTLs reported that poor communication was the source of many difficulties during this time as miscommunication between departments often led to redundant work or friction when departments made assumptions about the methods and approaches of other departments. Many institutions established communication channels that inadvertently complicated matters as information would often be distorted or inaccurate by the time it reached the reader. In one institution, faculty were misinformed about the modified final exam process, which resulted in the CTL having to convert over 1000 final exams to online versions.

CTLs also noted the challenge of balancing the requirement to provide information quickly with the demand to make sure the information was accurate and as complete as possible. The number of messages and the density of information in each message was also important as people complained about receiving too many messages, thus not reading them all, but also missing information when fewer messages were sent that contained too much information, resulting in people skimming through the messages. Many CTLs reported the frustration of finding that solutions they had suggested weeks or months earlier were missed because faculty were presented with too much other information.

Another challenge they encountered included limitations due to a lack of user knowledge. In many instances, CTLs reported that they had found a technology or method that could effectively solve a problem, but that the solution was abandoned because the users (faculty, students or staff) did not have the knowledge or skills to use it, and there was no time during this phase for extensive training.

Phase 2 - Challenges Preparing for The Fall Semester

When the panic and chaos of completing the Winter semester had passed, the CTLs began the second phase of the transition--preparing for the Fall semester. While the first phase was primarily reactionary due to its abrupt start, CTLs now had some time to prepare for the Fall semester, which would permit them to be more proactive in their decisions. Although this phase did extend for four months, CTLs pointed out that it was still a very short period of time for the amount of work they had to accomplish with some estimating that moving the courses online alone would normally take up to three years to accomplish. These four months are also typically the quietest period in educational institutions. With many faculty and staff away for vacation, CTLs were further limited in what they could accomplish in this time.

With the Fall semester approaching, CTLs reported that they were focusing on ensuring their teams would be able to handle the demands of the upcoming year, returning their focus on high quality education by providing faculty with more comprehensive training, and addressing the remaining sources of inequality for students. As government recommendations for physical distancing and regulations as to the number of people allowed to gather in one place were still regularly changing, higher education institutions, for

the most part, decided to limit the amount of on-campus educational activities to the minimum, limiting these activities to those that would be impractical or impossible to conduct online.

Internal Challenges

Many CTLs began this phase by re-evaluating their teams' capacity and hiring new team members. Many staff hired to support the team during the Winter semester were temporary employees. Teams now had to hire permanent employees who had expertise in higher education and online pedagogy. These skill sets were critical to help teams prepare to meet the demands of the coming year. Most CTLs reported that their experienced staff members had been working 10- to 14-hour workdays during the first phase to meet the needs of faculty and students as well as support temporary staff. This pace is certainly not sustainable in the long run. As was the case during the first phase, however, CTLs reported significant difficulty recruiting qualified candidates. Given the global nature of the requirement to move courses online, professionals with this expertise were in high demand. Finding adequate numbers of new recruits was a major problem. For those who had managed to hire new staff members, the challenge of online onboarding persisted.

Team cohesion also remained a problem. Many CTLs report that while their lines of communication were much more efficient than they were initially, working remotely was simply not the same as working together in the same physical space. Some CTL employees indicated that they felt isolated as they worked remotely. CTLs were faced with the challenge of maintaining the morale of the team and creating a sense of togetherness and cohesion, even at a distance. While team members would naturally interact informally at the office during breaks or lunch hour, these types of interactions did not occur online. Many CTLs reported not knowing how to create informal and valuable interactions online without them feeling contrived.

Vacation was another reported challenge. Human Resources departments insisted that CTL staff take their planned vacation. While CTLs recognized that rest is essential to prepare individuals for the extraordinary demands of the coming year, they also recognized that having people away hindered efficient preparation for the Fall semester. Burnout was a serious concern however, as CTLs report that there had been no downtime since the start of the pandemic and demands on them were increasing, not decreasing, as the next academic year was approaching.

Childcare was another challenge many CTLs faced. Although many institutions have childcare services for employees, these services were suspended at that time, leaving many employees juggling their family's demands with their work.

Challenges Related to Mandate

In preparation for the upcoming academic year, and the Fall semester in particular, CTLs identified six primary areas of action that they had to take, each with its own set of challenges. These included: returning the focus to high quality education, digital resource selection and on-campus scheduling,

training and formation, responding to faculty requirements, responding to student requirements, and issues surrounding systemic racism.

Returning the Focus to High Quality Education

After temporarily putting aside their usual mandate to swiftly move all courses online, CTLs began to redirect their efforts back to promoting good quality education as the second phase began. Although not ideal, most courses in the Winter semester were completed with online synchronous or asynchronous lectures, an approach that was largely accepted by stakeholders at the time because of the abrupt shift. CTLs now refocused their efforts back to promoting excellence in teaching to ensure good quality learning experiences for students in the upcoming academic year.

In the second phase, CTLs encouraged faculty to minimize lectures and integrate into their practice other pedagogical approaches that provide students with authentic learning experiences and engage them more actively in their learning. CTLs admit that convincing faculty to move away from solely lecturing has always been a challenge, but that this challenge was even greater now as many faculty members did not have the knowledge or skills to facilitate authentic learning experiences in class, never mind online. CTLs therefore determined that it was necessary to create training sessions to provide faculty with more advanced tools and skills to use online teaching platforms effectively, as well as training on how to create authentic learning experiences and engage students more actively online, both synchronously and asynchronously.

Similarly, CTLs encouraged faculty to move away from sit-down exams in favour of assessment methods that measure students' learning in more authentic ways. These efforts were challenging, however, as many faculty members insisted they did not have the time to devote to changing their teaching and assessment methods in addition to learning to use online teaching platforms and, in many cases, also adapting their research given the new COVID-19 context.

Assessment in the form of synchronous exams remained a problem as well. Many faculty members were either unwilling or did not believe it possible to modify their assessments to alternative forms of assessment. CTLs were still searching for solutions that addressed issues of cost, cheating, privacy, accessibility for students, and intellectual property.

Resource Selection and On-Campus Scheduling

Among the first challenges of the second phase of transition mentioned by CTLs was the selection of the software and platforms required for effective online teaching in the coming year. Although the solutions for the first phase were adequate given the urgent necessity to finish the Winter semester, CTLs reported that these solutions were hastily selected based on availability and were not necessarily the best options in the long run. Furthermore, with key decision-making personnel away on vacation during the summer months, they felt they had to make their selections quickly to receive approval and begin integration timely. They also needed the time to get any necessary training themselves, and then develop training for faculty.

CTLs and their IT services needed to consider a number of technology requirements as they chose platforms and software applications to support distance learning. Among the first considerations when selecting digital resources was their accessibility. Zoom, for example, was inaccessible to Chinese students who had returned home to be with family (at the time, Zoom was banned in China). In addition, any software applications widely in use in businesses do not meet accessibility requirements for students with disabilities because adaptive software, like screen readers, require particular specifications to function properly. The requirement to support asynchronous interaction was another factor to consider. Asynchronous functionality allows students to engage with faculty and peers at times that are more convenient, whereas synchronous activities were problematic for students who were joining from different time zones, students caring for family members, or students with limited Internet bandwidth. Sharing large files was another challenge. Students with limited bandwidth were having difficulty retrieving and posting large documents necessitating reduced individual file sizes.

Another major concern was finding alternatives to in-person science labs and other practical learning activities like art studio sessions and engineering workshops. Online science lab simulations exist, but good simulations are costly and raised questions about compatibility with the institution's network, IT security, local governmental requirements, and whether the staff would be able to offer support to faculty and students as they used the platforms. CTLs reported that faculty had also expressed concerns about the validity of the learning experience when using such simulations as they do not sufficiently replicate the in-person experience. Art faculty also insisted that working with the physical materials is essential for student learning and that it is critical that students have on-campus studio time.

These concerns raised the challenge of deciding who should have priority access to on-campus facilities and how to schedule access to minimize the numbers of persons in physical spaces at one time. In addition to instructional requirements, researchers also had to access their labs and sometimes time-sensitive research. CTLs had attempted to gather information about priorities for on-campus activity from faculties and departments, but many reported that only about half of their inquiries received timely responses, further complicating sensible decisions.

Training Faculty Members

Although many faculty members were able to complete the semester with the rapid and basic training provided by the CTLs in the Winter, CTLs reported a gap between completion and the creation of quality instruction. While they still could not provide the level of training they would ordinarily provide to faculty as they transition a course to an online delivery model, CTLs wanted to develop training that moved beyond the basic information provided in the emergency basic training of the Winter semester and include training that would enable faculty to apply a variety of pedagogical approaches that go beyond lecturing. CTLs also needed to develop training that explored effective asynchronous approaches to teaching as many stated that a combination of synchronous and asynchronous engagement would be optimal. Furthermore, in attempts to avoid issues with final assessments at the end of the Fall semester (i.e. exams), CTLs wanted to include training on alternative methods of assessment, particularly how to create authentic assessments, which are superior to final exams.

CTLs were also now focusing on skill development of teaching assistants. They cited that the success of online courses, particularly with large numbers of students, is heavily dependent on effective teaching assistants, but that few had experience facilitating student engagement in online courses.

Responding to Faculty Requirements and Needs

In addition to the many workshops and training sessions that CTLs had to develop to prepare faculty for teaching online in the Fall semester, CTLs were also considering other ways to support faculty during this transition. For example, CTLs reported that they were keenly aware that many faculty members were juggling many tasks as they adapted their teaching, research, and personal lives to the demands of the COVID-19 context. They also recognized that many faculty members had taught in their field with a particular approach for many years and that changing their approach at this stage in their career would be difficult. Some remarked that there were faculty who still used black boards to lecture and had never used a learning management system. The task of teaching online for these faculty may seem daunting, but they may hesitate to approach CTLs for help because of feelings of shame and embarrassment. CTLs wanted to be sensitive to this and were trying to offer as much one-on-one support as possible to faculty who required support beyond the needs of the average faculty.

Onboarding new faculty was another challenge CTLs were investigating. CTLs indicated that they typically spend considerable time attending to the requirements of new faculty members as they familiarize themselves with the campus, their department, the institution's regulations, and the institution's services. Much of this support was provided in person to foster a positive working relationship between the CTL and the new faculty, but CTLs were now trying to find ways of accomplishing new faculty onboarding as effectively as possible online.

Despite all that they had to accomplish in the short few months before the start of the Fall semester, CTLs tried their best to remain as flexible as possible to respond to faculty's needs as they arose. They were aware that many departments only notify faculty of the courses they will be teaching shortly before the semester starts and that faculty may only seek their help the last week of August. They were also aware that, despite their efforts to encourage faculty to plan their courses in advance so that they could anticipate their requirements and seek the appropriate support, there would be faculty who would prioritize their research and personal needs during the summer and would only seek assistance in the last week of the summer. In preparation for these later comers, CTLs tried to anticipate the requirements that would arise during these last few days preceding the start of the Fall semester so that they could address these needs as efficiently as possible.

Finally, CTLs noted concerns about the importance of aftercare. Following-up with faculty to ensure that they are functioning well after training is essential, but CTLs reported that this is very time consuming and problematic at a time when time is so limited.

Responding to Student Requirements

In addition to meeting faculty requirements, CTLs were also concerned with the requirements of the students. As the new academic year approached, new students, returning students, and international students would all have to have assistance as they adapted to online learning.

Although not typically a part of their mandate, CTLs were asked to assist institutional units with new and returning student orientation. New students are normally welcomed with on-campus events and orientation sessions to introduce them to the campus, their department, the student organizations and clubs, and the school's services. This is usually a time when students make new friends and become more at ease in their new educational setting. Evidently this year these events were not possible in person, and so they all had to be moved online, highlighting the challenge of how to recreate this jovial time for new students from a distance. With their developing expertise in creating engaging online experiences, CTLs reported that they were being asked to assist in events such as new student orientation.

New and returning students alike would also have to have help developing the skills to learn online. For many students, this would be their first online learning experience, particularly in the case of new students, and so they may not yet possess the skills to learn effectively from online courses. Many CTLs reported that they were in the process of trying to determine how to best help students develop the skills they required to learn effectively online.

The requirements of international students were also of great concern. CTLs reported that catering to the requirements of international students was particularly challenging because they were not even aware at the time as to how many international students would be studying from their country of origin and what resources they would have access to (computer, internet, software, etc.). CTLs were already aware that students may not have reliable internet access or sufficient broadband for synchronous online lectures. Provisions would have to be made to circumvent these limitations by providing course materials and lectures in small packages to facilitate downloading.

Another concern surrounding international students was access to campus services. Many institutions were providing call-in services to replace in-person appointments, but these were potentially inaccessible to international students due to long distance calling costs. Some institutions considered toll-free lines, but the expense was not within reach for most. The question of how to provide library services was also raised as students abroad would not be able to access curb-side pickup of physical resources.

Addressing Systemic Racism and Inclusion

Systemic racism and inclusion were brought to the forefront after the death of George Floyd in the U.S.A. on May 25, 2020, as well as the push from populations around the globe to bring about change. While systemic racism and inclusion are enduring issues that should be addressed by academic institutions as a whole, CTLs were reflecting on how they could contribute to creating change through their services. As CTLs focused on the instructional experience of faculty and students, they were placing particular emphasis on how to make the learning experience more inclusive for all students and faculty. Many CTLs

reported that they were being asked to produce guidelines and recommendations to address systemic racism and inclusion as quickly as possible, however, they were being cautious not to rush this process as their goal was to develop effective measures that would result in positive change, a task that requires deep reflection and careful consideration. CTLs identified several questions that they did not have the answers to or that they required to reflect on further:

How are CTLs contributing to the problem of systemic racism?
How can CTLs help reduce systemic racism in their centres and in teaching and learning contexts?
How to support inclusive practices in course design and delivery?
How can CTLs sensitize students and faculty to these issues?
How can CTLs spread awareness of issues of systemic racism in online contexts?
How can CTLs provide support to students who are victims of racism in the classroom?
How can CTLs help faculty avoid color blindness and neutrality in their teaching practices?
How can CTLs cultivate the adoption of culturally responsive pedagogies?

Despite their challenging workload, the CTLs were adamant that addressing systemic racism in their institutions was among their priorities and that they would be working toward developing guidelines and recommendations in parallel to the transition to online teaching.

Phase 3 - Challenges Expected During the Fall Semester (Including One or Two Weeks Prior To Start)

The CTLs reported that the challenges that await them in the Fall are largely unknown. Most CTLs reported that they were trying their utmost to anticipate the challenges that they would encounter so that they could have solutions ready to implement as quickly as possible should they arise. They had indicated that they did anticipate that requests from faculty would increase dramatically as the Fall semester approached, particularly in the last two weeks of August. They also anticipated that the first few weeks of the semester would likely revolve around providing faculty and students with immediate support as they encounter difficulties accessing and teaching courses.

As the semester progresses, however, they predicted that these immediate demands will decline, but that more long-term problems may arise for which they would have to develop solutions by the start of the Winter semester. Most CTLs admitted, however, that despite their efforts, there remained far more questions than answers regarding the challenges they would encounter in the Fall semester.

Phase 4 – Winter Semester and Beyond

At the time this white paper was written, CTLs have not made predictions about their anticipated challenges for the Winter 2021 semester and beyond. Given the many unknowns about COVID-19, whether a vaccine will be developed or whether courses will be able to resume in person by January 2021, they reported they could not make predictions as to what to expect in six months' time. Most CTLs stated that they would continue to prepare for as many likely scenarios as possible and remain flexible so that they can address whatever may come. The majority of CTLs have stated, however, that like most other aspects of our lives, education is not likely to return to what it was before COVID-19. Given these

unavoidable circumstances, most CTLs have stated that they plan to take advantage of this "COVID catalyst" to create a more rapid and permanent change that will improve education for future generations.

Challenges Not Bound by Phase/Time

The challenges discussed thus far were challenges that required immediate action and were characteristic of the phase in which they took place. The challenges discussed in the following section are challenges that are more persistent in nature, existing long before COVID-19, and likely to persist beyond the boundaries of responses to COVID-19. Some of these challenges alone may be relatively benign in ordinary times but given the heavy workload and the time constraints that CTLs have been experiencing as a result of the pandemic, these challenges have exacerbated the other challenges the CTLs have been trying to address.

Determining What Constitutes Good Online Pedagogy

Determining what constitutes good online pedagogy is a question that has existed for as long as the Internet has existed. CTLs have been working with faculty for decades to innovate online teaching and learning to take advantage of its many affordances. As the physical classroom had remained the gold standard of education up until the start of the pandemic, however, most endeavours had focused on in-person educational innovation.

As institutions responded to the pandemic, this focus has shifted dramatically. CTLs have now been asked to rapidly produce guidelines for minimum online teaching standards. They conducted a full investigation to identify the best research-based teaching practices before making any recommendations. Although they produced guidelines (Appendix 4), there are still many questions that invite further investigation. For example, some of the questions CTLs are still grappling with include:

> What is the optimal design for high quality online courses?
> How can online courses provide deeply engaging learning experiences?
> How can inquiry-based learning be used in online courses?
> How can online courses promote meaningful interaction between faculty and students, and among students?
> How can a sense of togetherness be created in online courses?
> How can authentic assessment be created for online contexts?
> How can lateral learning structures be created in online courses instead of vertical learning structures?

With the pandemic, other questions have arisen as students spend more time learning remotely:

> How can online courses be made accessible to all students in all contexts?
> What is the best balance between synchronous and asynchronous teaching?

How can online courses be adapted to meet the curriculum requirements of the various disciplines?

How can online courses be designed to avoid “Zoom fatigue” and cognitive overload?

CTLs are continuing to investigate these questions and are exploring new options for curriculum design and teaching and learning that draw on multiple sites and modalities such as new ways of blending technology with place-based learning to create multiple ways of facilitating understanding in relation to the world. At the same time, CTLs have been careful to resist the temptation to standardize pedagogical approaches for everyone. They recognize the importance of a diversity of pedagogical approaches to best answer the needs of both faculty and students. They listen to the individual requirements of faculty and adapt solutions to their specific pedagogical approach to assure this approach adds measurable value to the students’ learning experience.

Handling Resistance from Faculty

Resistance from faculty was a common theme in reports from CTLs. While people were mostly onboard and positive about the requirement for transition to online teaching before April 30, the centres reported that they were encountering more-and-more resistance since the start of the summer. Some centres compared the Winter semester to a sprint to the finish line whereas after then the marathon had begun, and people were getting tired and impatient. The centres acknowledged that the vast majority of faculty remained very cooperative, and that the resistance they were encountering represented a minority of faculty, however, when working with thousands of faculty members, the amount of resistance they were dealing with added up.

In efforts to understand the sources of the resistance to address it at its roots, CTLs identified several factors that seemed to be at play. As noted above, one of the sources was fatigue. Like the staff at CTLs, faculty had been overwhelmed during this transition as they not only moved their courses online but also worked to adapt their research approaches to adjust to the new conditions brought on by COVID-19. CTLs reported that faculty were regularly working 10 to 14-hour days, often for 6 to 7 days of the week. As a result, it appeared that exhaustion was setting in and that some faculty perceived new requests or recommendations from the CTLs as overwhelming.

CTLs also reported that being asked to change their teaching approaches to adapt to the online context was met with considerable pushback from some faculty. Some faculty were insisting that lecturing is efficient and effective and that they would not change this approach. Others were refusing to incorporate more asynchronous approaches to their teaching as they stated that they did not have the knowledge and skills to do so and did not have the time or inclination to learn. In the case of recording lectures, many faculty members expressed concerns over intellectual property rights and did not want students (or their institution) to have permanent records of their lectures. In some countries, faculty cited government policy to argue against being required to teach online. These were particularly challenging contexts as educational institutions had little recourse when solutions clashed with policy.

In all cases, CTLs were very careful about how they offered support to faculty and departments and how they presented guidelines so that faculty did not feel that the CTLs were overstepping their bounds and not respecting academic freedom. Unfortunately, some CTLs reported that, despite their best efforts, some individuals and departments stated that CTLs cannot force them to make changes to their teaching approaches and claimed that CTLs were using the pandemic to push their own pro-distance learning agenda, forgetting that CTLs were simply complying with what was being asked of them by their institutions and stakeholders. Although CTLs recognized that these reactions may have been elicited by anxiety and stress, the resistance made their work more challenging.

Dealing with Expectations

Many CTLs reported that managing unrealistic expectations of their capacity was becoming more challenging as time progressed. In the Winter semester, centres were not expected to be able to solve all problems because of the sudden turn of events. However, after that initial phase, expectations by all stakeholders rose as centres were perceived to have more time to develop and implement solutions.

Given the number of uncertainties for the coming academic year, CTLs reported that leadership was asking them to prepare effectively for all possible outcomes, a task that was simply not possible. Preparing for one scenario for the coming year was already overwhelming CTLs and, even then, they would not be able to resolve all the problems some upper administration was expecting them to handle. Interestingly, some CTLs acknowledged that they contributed to this expectation by taking on responsibility that they could not handle and had to learn to "take the cape off" and recognize better what they were and were not capable of achieving. CTLs also reported that they had to adjust their expectations of other departments and faculty. This was a challenging time for everyone involved, each dealing with their own set of challenges. Among their shifts in expectations were those they had of faculty. They recognized that faculty as a whole were extremely overwhelmed in the early stages of the transition to conditions under COVID-19 and that they needed to adjust their expectations to be more realistic as to how much faculty could accomplish given all of the demands on them.

Communicating and Cooperating Between Departments

One aspect that was proving to be a persistent challenge during the response to COVID-19 was communication and cooperation between the CTLs and other institutional units. This issue was particularly acute in the initial stages of the transition as time was of the essence and large amounts of information were being sent to some parties and not to others, causing considerable chaos. After the initial turbulence, communication channels improved somewhat, but some CTLs reported that there were still some problems that continued to contribute to the challenges they were experiencing.

A lack of cooperation from some departments was also creating challenges for CTLs. Although CTLs recognized that these were unprecedented times and that departments might not have known yet what their requirements and priorities were, a lack of communication was making the centres' task of developing solutions intended to address everyone's needs and wants much more challenging. CTLs

indicated that they could help departments identify their priorities and that it would have been preferable that the centres and departments work together to find solutions than everyone working in parallel.

Dealing with Inflexibility of Institutions (Educational and Government)

One of the challenges that a number of CTLs reported limited them in their efforts to find and implement solutions to the various problems was inflexibility on the part of their educational institution and governments. Though CTLs reported their institutions had made efforts to give the centres more leeway as they developed solutions, they remained highly bureaucratic institutions requiring CTLs to follow the proper channels for decisions and approvals, regardless of the time it took.

Obtaining funds and justifying costs was one of the greatest challenges in this regard. Although there was some relaxation in terms of justifying spending at the start of the transition, the flexibility only applied to a limited extent. For example, even though CTLs were immediately aware of some possible technical solutions that could be implemented quickly and efficiently, they had to go through the full proposal process because the cost of the solutions was beyond the allowance for an expedited expense process.

Hiring new staff was also a challenge. Many CTLs reported that they were directed to recruit new hires from within the institution first. This direction initiated a process that had to be completed even though they knew they would not be successful taking professionals from other departments or units. One CTL even mentioned that they were actually in the process of hiring a coordinator for their centre and that the process was halted because of the chaos at the start of the transition, hindering their ability to respond swiftly.

Political or external circumstances were also adding to the challenges of some CTLs. In one country, CTLs were required by the government to instruct faculty to continue with synchronous teaching, but online, despite the CTLs objections that this approach would not be accessible to all students. In this same country, the political and economic crisis had resulted in universities having to release up to 25% of their staff with faculty taking significant pay cuts due to the economic crisis. These circumstances were compounding the challenges these centres were already facing, making their work infinitely more challenging.

Determining Success

Finally, the question of how to determine success would be a challenge for many CTLs. They reported that it is challenging to measure success of academic programs in ordinary times, never mind during unprecedented times such as these. The mandate of CTLs is to support innovation in teaching and learning, but they were questioning if it would be appropriate to use their usual measures to determine if their efforts were successful since their mandates and priorities had changed. At some point, CTLs recognized that they will have to address program evaluation too.

To Face the Aforementioned Challenges, CTLs Reacted Fast and Made Unconventional Decisions. The Following Are Examples of Concrete Actions Some CTLs Took Since March 2020.

Examples of Actions CTLs' Took to Quickly Establish Effective and Efficient Communication

As discussed previously, the panic and the desire for any shred of certainty in a time of rising uncertainty led to an exponential sharing of information, coming from different sources using a wide variety of channels and in many instances involving conflicting messages. CTLs had to ensure effective communication flows within the CTL, between the CTL and faculty, and between the CTL and institutional leadership.

CTLs gave their teams access to communication technologies such as Microsoft Teams and Zoom and made sure they set up efficient and effective communication strategies to stay connected without being overwhelmed or distracted. This helped team members act quickly and protected individuals from feeling isolated.

CTLs were concerned with their communication flow with faculty. Early on in the crisis, many established transparent and clear communication strategies with faculties. Some sought sponsorship from deans, provosts and presidents when a key message was critical and important endorsement from leadership was needed. One centre even used social media and tweeted about their services to keep their community informed of their latest offerings. To make sure their tweets were received by all, even those who were not on Twitter, they published their tweets via email once a week.

To filter the messages coming from the institutional administration and the government, some CTLs designated one central person or a sub-team to track all updates and procedures coming from these particular sources. The designee read (or viewed) messages carefully, documented them, synthesised them and then shared them with the CTL. This strategy reduced the distraction of each individual monitoring important communications and reassured the CTL's staff as they trusted that they would be kept updated and informed as they planned their actions.

Example of Measures CTLs Took to Equip and Empower Their Teams and Help Them Perform in a Time of Crisis

CTLs adopted a version of a distributed model, shelved their existing hierarchy, flattened their decision-making structure, and empowered their staff to lead. They pulled back from special projects and invested their collective efforts in addressing the current high-priority requirements. The staff underwent a speedy upskilling to become proficient in the varied digital technologies they would propose to faculty for online learning.

CTLs made good use of instructional designers and educational specialists who had one foot in the centre and the other in a specific faculty department. This staff attended service meetings, so they were familiar with the CTLs' services. They promoted CTL services with their faculty

members, and they shared information about innovative faculty initiatives to the CTLs. The CTLs then decontextualized these initiatives or practices and made them available to other faculties. These shared team members worked along two axes in a transversal way to break down faculty/department silos and to ensure maximum complementarity in terms of expertise, sharing processes and collaboration. Dedicated to faculties, they worked in a vertical with a faculty, with a culture, with processes and sometimes even technological choices that were specific to the faculty, while working transversally, or horizontally, to share what was done in the faculties with the other educational specialists and tried to bring it all together in a certain way, in a certain coherence and complementarity.

CTLs also hired new staff including instructional designers, user interface (UI) and user experience (UX) designers, multimedia developers, and web producers to help support the transformation to teaching remotely. One of the strategies they adopted to onboard these new hires was to pair them with experienced members within the team. Their mentors facilitated access to all resources, suggested webinars and other opportunities to learn required skills and information, and, if new hires were new to the institute, helped familiarize them with the culture of the institution and operation of facilities.

Before the pandemic hit, a few centres had faculty members either as part of their team or with whom they interacted frequently before the pandemic. A couple had a fellow in every discipline, or every program, who worked partly in the centre and partly in their discipline. This initiative was re-championed in March 2020 and more CTLs adopted this model. They brought in faculty and included them in meetings. With their on-the-ground experience, these faculty became a great asset to the CTLs and gave helpful insight on what could work and what should absolutely be avoided. They recognized the intricacies of teaching their discipline and were able to bring that knowledge to good course and authentic assessment design, facilitation, technology integration and classroom management.

In addition to including faculty, a large number of CTLs involved students in some sort of functions. Some hired graduate students who knew the learning management system to provide additional support to faculty over the summer. Others partnered students with faculty to help with the design and development of their courses. While many students did not have a background in education or instructional design, they had experience being in a previous version of the course or had taken an online class. They gave insight on areas where students were likely to struggle. TLCs also hired teaching assistants to train other teaching assistants who would be mobilized in different programs.

A number of CTLs were part of or in contact with communities such as the Educational Developers Caucus (EDC), the Ontario Universities' Council on e-Learning (OUCEL), BC Campus, eCampusOntario, ContactNorth, and the Staff and Educational Development Association (SEDA), where up-to-date resources were posted and through which CTLs leaders met on an ongoing basis. These meetings, which became much more frequent with the outburst of the COVID-19

pandemic, were of utmost importance to these centres. They got to discuss their common challenges and think together about potential solutions to address them. Leaders then brought back these ideas to their institutions.

Besides upskilling the team and expanding it, many CTLs were aware that they had to care for their staff. They made sure to highlight and value their contributions. They did frequent check-ins where they talked about their well-being. In several cases members were stressed, anxious, overwhelmed or even panicked. CTL directors and other team members were attentive to these individuals' needs and supported them very closely. They asked them to prioritize taking care of themselves and their families and to focus on what was critical for the CTL to survive as a whole. CTLs also identified incentives to get valid, measurable internal and external results.

Example of Approaches CTLs Took to identify Wants and Needs

CTLs warmed up by establishing rapport with people to connect and to build relationships. Many CTLs were convinced that a good relationship was key to making faculty feel comfortable trusting their advice.

They worked through the deans to identify the needs and wants of their particular faculty. They met with program or discipline chairs and program directors to figure out their truest requirements--what worried their faculty members and kept them awake at night--so they could curate programs that were discipline- or program-specific, and build or customize workshops to address their particular interests and needs.

Together with faculties, CTLs also identified courses that could be problematic and should be prioritized as resources and expertise were allocated. Some of these courses had large enrollments, some had significant experiential learning components, others were difficult to deliver successfully online such as music courses for which ensembles used the institutions' music instruments. Then they made sure to find solutions for such courses.
Discussions with students also helped CTLs identify requirements. Some CTLs organised panels where students shared their new reality with faculty. They voiced what could work for them and what could be very challenging in terms of online or hybrid learning.

Example of Actions CTLs Took to Provide A Wide Variety of Synchronous Training and Asynchronous Resources to Faculty to Access at Their Own Convenience

In the first couple of months, faculty went through an unprecedented amount of extensive training and upskilling to use the digital and communication technologies. The learning curve was steep in many cases and the results varied. However, most faculty were grateful for the instruction they received. Never in the history of CTLs have they trained such a large number of faculty in such a short timeframe. Faculty were attending webinars by virtue of need. Some webinars reached more than a hundred attendees.

While the request for training has slowed down during the summer, planning for the fall sessions was proceeding with a focus on specific needs. Many CTLs shifted from a total focus on how to use digital technology to bringing forward how to think pedagogically about the design of courses. In addition to sharing recorded videos, CTLs planned to build group conversations and live and engaging interactions during the coming webinars. They knew faculty could no longer tolerate or accept live sessions with talking heads, and they wanted to demonstrate best practices as they train at a distance.

CTLs identified several faculty members who were using different digital tools or assessment strategies, and then made videos of them that they shared with the faculty member's department. They invited these same faculty to share their solutions institution wide.

In some cases, some CTLs put the onus on the faculty to prepare. They provided them with training and webinars, they curated and organized web-based resources, and made sure that faculty could reach out to staff when stuck. Their goal was to help faculty become independent and autonomous. They worked to prepare faculty to reflect on what they wanted to consider doing in order to enhance the quality of their courses and to respond accordingly.

All CTLs with no exception built some sort of a website or modified their existing pages, many with two target audiences in mind, faculty and students. An explicit description of these resources is presented in the section "Panorama of publicly shared resources" of this white paper.

Several CTLs expanded their support and technical training to include the upskilling of academic staff members and professional services staff.

Example of Actions CTLs Took to Support and Promote Communities of Practice That Emerged During the Crisis within and inter-Faculties

Inter-faculty communication increased since the beginning of the response to the pandemic. Deans from different faculties met and shared their solutions. Departments were also encouraged to share and support each other. Some CTLs noticed these communities of practice were forming. They created spaces on platforms such as Microsoft Teams to host and facilitate community discussions. The goal was for faculty to support each other but also to have the CTLs supporting them when needed and to centralize and monitor the space where faculty would go to find answers and innovative ideas.

Some CTLs organised thematic brainstorming sessions with faculty within the same discipline or inter-disciplines. CTLs hosted these virtual sessions, facilitating discussions around topics that emerged from the meetings the CTLs had with faculty.

Collaboration initiatives went one step further and involved shared online project initiatives inter-universities under a Creative Commons license. Faculty members from two institutions had the opportunity to co-develop and co-design and then offer courses between the institutions. Faculty could receive support from CTL staff from both institutions.

Example of Specific Directives or Advice CTLs Gave to Faculty Regarding Modalities and Course Design

While a couple of CTLs were assertive in their directives to faculty from day one, decided which online platforms faculty could use, and limited their support to these specific choices, others let faculty choose the platforms faculty were familiar with. This lack of consistency led to a total chaos that overwhelmed both students and CTLs. Many of these CTLs had since opted for a limited selection of platforms and made sure to introduce them to faculty and to provide training and resources on how to use them for their online courses.

Institutions and media defined differently certain words or concepts related to online learning or used different terms interchangeably. A couple of CTLs shared their own definitions among faculty to provide clarity and avoid confusion about terminology.

Between March and April 2020, *good enough* became an acceptable target for online courses, which were called *emergency remote courses*. Faculty were not working with a full online course development team behind the scenes. They needed to adapt, experiment and see what worked. Knowing that they were in a forgiveness period comforted some faculty. CTLs reassured them that they did not have to create the Cadillac of courses on their first attempt. Moving forward, a gradual shift to higher expectations has started and the period of forgiveness will soon no longer exist.

CTLs advised faculty to think about their teaching approaches and then to work towards them. They helped them conduct labs and even some internships online. They pressured instructors into making recordings available.

A number of CTLs adopted an inductive approach. They started by discovering faculty's desires, vision and goal for their courses and then proposing feasible pedagogical approaches. They made sure that student assessment strategies were aligned with learning objectives. They reiterated the importance of interacting with students, of prioritizing the elements to take into consideration when designing student experiences and of keeping in mind students' perceptions of online learning.

Example of Actions CTLs Took to Conquer the Assessment Beast, to Ensure Reliability and to Minimize Inequity

Some institutions gave faculty complete freedom to come up with more adapted, reliable and feasible assessment approaches and to figure out the grading strategy. They focused on ensuring

that faculty and students could communicate with each other and set up an evaluation framework that made sense to all parties. Others implemented the pass-fail or satisfactory-unsatisfactory policy. Students could opt to take a course and just receive satisfactory or unsatisfactory, not a letter grade.

CTLs advised faculties to move away from scheduled time exams and reflect on an authentic and complex type of assessment that would require students to mobilize their knowledge in the service of their skills. They encouraged them to make their students' thinking visible, to allocate time for reflection and to opt for the accumulation of traces along the way.

Several institutions allowed for late withdrawals or getting incomplete with no penalties. Just knowing that the option was available and that they didn't have to decide until they saw their grade comforted students. It removed the need for proctoring as the grades did not matter that much at that point. These institutions decided against proctoring early in the transition because of the potential for students experiencing technical issues. They we not even sure proctoring software would run on all of the students' computer hardware. Many institutions and CTLs opted for encouraging conversations about plagiarism and cheating with students and some required students to sign a pledge to avoid academic dishonesty.

CTLs tried to help faculty to think about assessments that would be meaningful for students and that would, by the nature of their design, not lend themselves to cheating. For instance, some research shows that having more frequent low stakes exams and multistage assignments rather than having a small number of high stakes exams, reduces the incidence of cheating.

Some institutions rewrote their policy for exams and redefined what *good cause* was.
Others cancelled all of the first- and second-year exams. They awarded credit for the courses and allowed their students to progress into the next year of study. They did not calculate a grade. However, they counseled the students to consider whether this approach was in their best interest, especially when content is foundational for more advanced courses. The exceptions were for some disciplines such as law and medicine where the professional bodies would not accept this approach.

Some adopted a no detriment policy through which faculty asked students to take their exams and then compared their performance in those exams with the grades that they had achieved pre-COVID. If the aggregate was worse than the pre-COVID-19 trend, the students were allowed to set those examinations aside and retake them in the fall. Institutions installed Help Desk mechanisms to provide 7/24-hour support to students during exams.

Since home environments were beyond CTLs control, many asked students simply to inform them if they were incapable of taking the exam, no evidence or explanation needed. These students were able to extend the assessment window to 24 hours. One CTL created a section in their virtual

learning environment for students to practice uploading and downloading files before the exam period.

Example of Actions CTLs Took to Ensure Equity in a Time Where Inequity Proliferated as Never Before

CTL guidelines to faculty included tips, ideas and resources around equity, diversity and inclusion. They encouraged faculty to always have an equity mindset, to build equity into all things they did, from having conversations with each other and their students to the way they designed their courses. While there were no performance indicators for equity, they tried to install equity as a value. They also advocated for culturally responsive teaching.
Many CTLs extended their support offerings to all faculty bodies including professors, instructors, lecturers, adjunct faculty, limited-term appointment (LTA), and extended term appointments (ETA).

Faculty were able to take their performance computers home and the CTLs supported them remotely when they needed technical assistance. Many made sure that faculty had the equipment they needed to teach online. Some centres distributed Wi-Fi hotspots and equipment such as Chromebooks to those who required it. Others created lecture recording booths on campus for faculty to book and use to record their asynchronous lectures. When the government allowed a physically distanced return to campus, CTLs and faculties arranged for staff to come into their office and collect their chairs.

They also made sure students had the equipment required to continue learning online. Many CTLs repurposed the laptop loans for students who did not have access to suitable technology at home and gave them those laptops on a long-term loan to take home. Additional financial resources and funds became available to students to apply for financial aid that was a grant, not a loan, to buy technology. The process was simple and straightforward, and the students received the money with relatively few delays.

In most institutions the directives were to be generous, humane and very flexible with students. CTLs invited faculty to take into consideration time zones for international students, student privacy, students who might have caught the virus, students taking care of elderly or family members who were sick, and students with children. They also asked faculty to make attendance in synchronous meetings optional, to opt for adaptable pedagogical approaches and varied media resources that were light in terms of bytes and downloading bandwidth. In some cases, approval was requested before software adoption. CTLs tested software for accessibility using free trials before allowing faculty to use them with their students.

CTLs advised faculty to discontinue the traditional 3-hour lectures, record all their live sessions, ensure their recordings were accessible to students, use captioning, and give students extensions on assignments.

One CTL went beyond ensuring accessibility to students enrolled in programs to training one student's family member on how to use the digital technology to assist her sister in her classes. The student was living with a physical disability. The student completed her semester successfully.

In order to identify equity requirements, CTLs hosted panels with student organisations, identity-based equity centres, LGBTQ resource centres, and multicultural centres, to name only a few. They invited student panelists to talk about their new reality, what they wanted faculty to know. Many of these CTLs administered ongoing serial surveys to monitor students' situations.

Many CTLs trained a brigade of students to provide peer support during the fall term. They sponsored and centralized the support through which students could communicate with each other, to get started with classes at the beginning of the school year, to learn to use tools that would help them to be autonomous, to organize their work and manage themselves,, and to stay engaged and motivated. They provided this support knowing that everyone is exhausted and that many students are vulnerable to losing purpose in uncertain times.

Since the eruption of the unprecedented crippling COVID-19 pandemic, CTLs donned their capes and bridged gaps to help faculty ensure quality education for all students, regardless of the delivery modalities. Given the continued turbulence in the environment related to the pandemic and inability of government officials and scientists to predict the end of the pandemic or the wide-scale release of a reliable vaccine, the work of CTLs has just begun.

PANORAMA OF PUBLICLY SHARED RESOURCES TO SUPPORT THE TRANSITION OF COURSES ONLINE DURING THE COVID-19 PANDEMIC: A SPECIAL FOCUS ON EQUITY

We present a panorama of publicly shared resources to support the transition of courses online during the COVID-19 pandemic, at the request of the Centres for Teaching and Learning (CTLs) we met between the beginning of June 2020 and the end of July 2020. Some centres had the advantage of belonging to a community who met regularly to exchange solutions on how to upskill and reskill faculty members to design, develop, and facilitate learning online, while others lacked this access for a variety of reasons and had to work in some sort of isolation. All CTLs had set *ensuring equitable learning experience* to students as a priority, however, admitted that inequity persisted despite their efforts.

This panorama aims to give an insight into approaches, focus areas, solutions, and developed resources by a wide spectrum of centres. It starts with syntheses of the main topics addressed in the resources, the type of support CTLs provided to faculty members and students during this crisis and the digital technologies they recommended to support pedagogical continuity and online teaching. It then presents an additional subsection that focuses on ensuring *equitable learning experience* to students.

The results of our analysis and the links we share in the Appendix 4 can help CTLs validate their approaches, revisit some of them, and prevent them from reinventing the wheel by using already developed material. Their time and effort can then be geared towards more complex and context-specific issues.

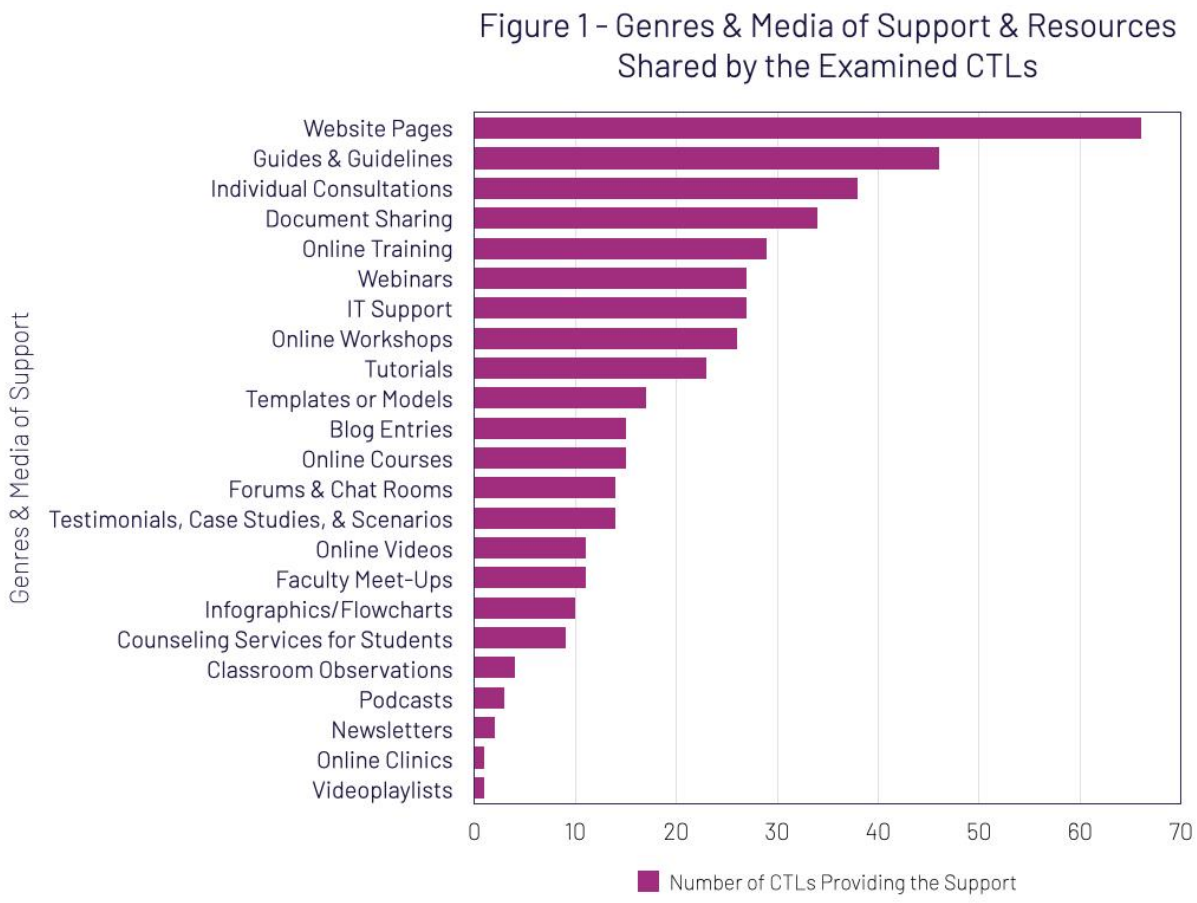
It should be noted, for further work in this area, that no student success data were collected. Future work should also link everything that is done and delivered to what will add measurable value for learner success in school and in life.

What Genres and Media of Support and Resources Did the Educational Institutions Provide Publicly on Their Websites?

The educational institutions shared information about live support in synchronous mode. The list includes: webinars; online training, online courses, online workshops, online clinics, and online classes; individual consultations with experts; IT support; live forums and chat rooms including discussion groups on different platforms such as Facebook Yammer, etc.; faculty meet-ups, faculty drop-in sessions or buddy programs where faculty meet or host informal and formal reunions with other faculty members to share their experiences moving courses online; and classroom observations.

The also shared support in asynchronous mode and the list includes website pages; video recordings of previously held webinars; video recordings of previously held online training sessions, courses, workshops, clinics, and classes; blog entries; tutorials; online informational videos with institutional messages, updates and presentations; forums and chat rooms; infographics and flowcharts; podcasts; guides and guidelines; document sharing (wikis, pdf and online documents, links to external resources and articles); templates, models and blueprints; newsletters; video playlists.

The following graphic illustrates the genres and media of CTL-provided support and publicly shared resources to support faculty members during the transition to online learning.

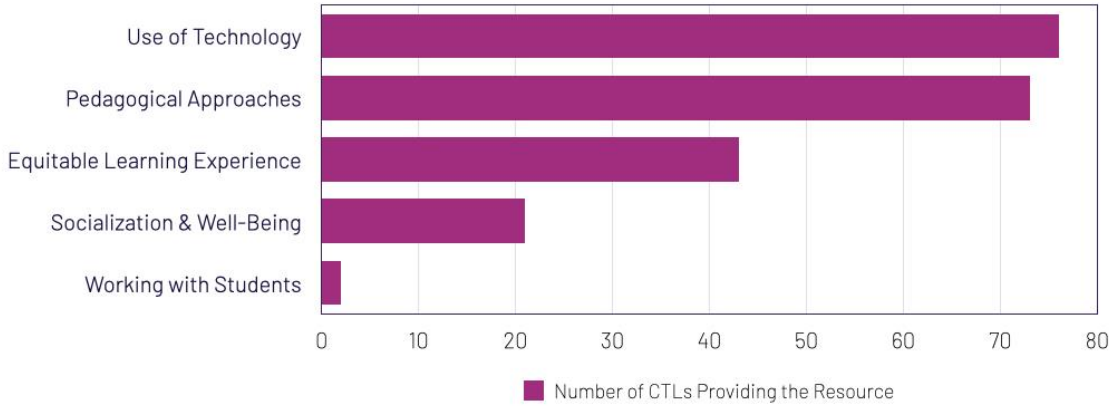


What Main Categories or Themes of Resources Did the CTLs Share Publicly?

We classified the publicly shared resources into five main categories or themes. These categories emerged from our discussions with centres:

1) Use of technology;
2) Pedagogical approaches;
3) Equitable learning experience to students;
4) Socialization and well-being; and
5) Working with students.

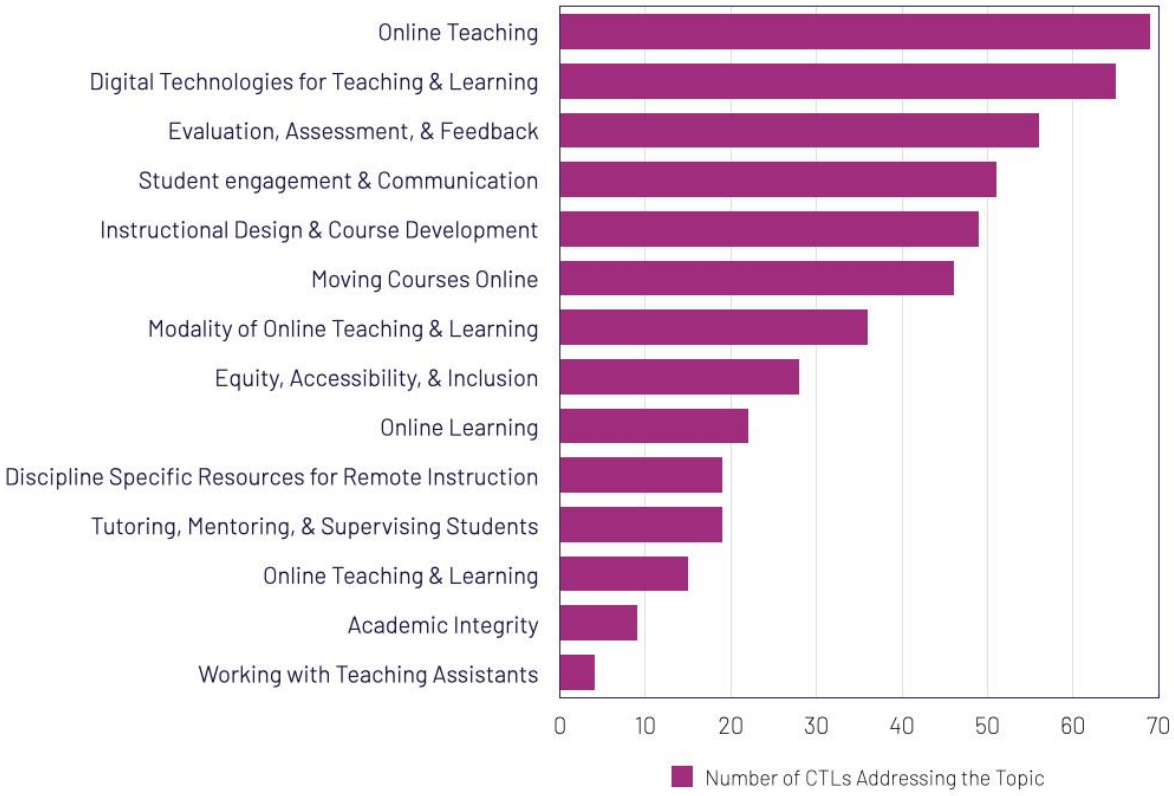
Figure 2 - Categories of Resources Shared by the Examined CTLs



What Specific Topics Did CTLs Cover in These Publicly Shared Resources?

The analyzed resources covered different topics. The presented categories for topics emerged from the data collected from websites. This means that the following categories describe the definitions and concepts that were used by each CTL in the analyzed resources.

Figure 3 - Topics Addressed in Resources Shared by the Examined CTLs



Online teaching. This category includes the resources about online teaching. Besides using the term online teaching, other variants were frequently mentioned such as distance teaching, remote teaching, and emergency remote teaching.

Online Learning. This category includes the resources that referred to online learning, distance learning, digital learning, learning from home, and remote learning.

Online Teaching and Learning. This category regroups the resources about online teaching and learning. It differs from the previous categories in the sense that CTLs did not differentiate teaching from learning and associated both terms in their accompaniment strategy. The resources in this category included descriptions mentioning terms such as distance teaching and learning and remote teaching and learning.

Instructional Design and Course Development. This category includes resources providing instructional design and course development tips. These tips can be provided through several means, including tutorials or a list sharing of content creation and course design tools.

Evaluation, Assessment and Feedback. This category includes all resources about examinations, online exams, formative assessments, evaluation, and feedback.

Moving courses online. This category groups resources about the specific activities and step-by-step instructions on how to transition from a face-to-face course offering to an online course delivery.

Student engagement and communication. This category includes resources providing recommendations and guidelines for maintaining student engagement despite the challenges during the pandemic. They also referred to ways of keeping in touch with students, whether through online discussions or group work using collaborative digital tools.

Digital technologies for teaching and learning. This category includes resources about the digital tools made available to faculty members and students for pedagogical continuity and learner success. These resources included description of recommended digital tools as well as information on how to access and operate these technologies.

Modality of online teaching and learning. This category regroups the resources with explanations of asynchronous or synchronous modalities for teaching online with the purpose of facilitating the adoption of a teaching modality for pedagogical continuity.

Equity, Accessibility and Inclusion. This category regroups resources and information relating to equity, accessibility and inclusion for both students and faculty. These concepts refer to the measures taken by universities and CTLs to ensure equity with regard to the difficulties encountered by professors and students.

Academic integrity. This category includes resources about academic integrity. In particular, it refers to resources that include recommendations of appropriate digital technologies, pedagogical and communication strategies as well as policies and agreements to ensure academic integrity during the crisis.

Tutoring, mentoring and supervising students. This category includes resources aimed at supporting faculty in supervising PhD students as well as mentoring students in undergraduate courses such as medical school.

Discipline specific resources for remote instruction. This category includes resources focusing on meeting the requirements and conditions of specific disciplines such as Foreign language teaching, Lab Sciences, and Technology development.

Working with teacher assistants. This category groups the resources provided by CTLs to assist faculty members who work with teaching assistants.

What Digital Technologies Did CTLs Recommend in Publicly Shared Resources?

Some publicly shared resources included classifications of digital technology tools according to their potential uses for teaching and learning. Such is the case of the CTLs in Ohio State University (2020), University College Dublin (n.d.-a), and Western University (n.d.) to name a few.

Figure 4 (a) - Digital Technologies Recommended by the Examined CTLs

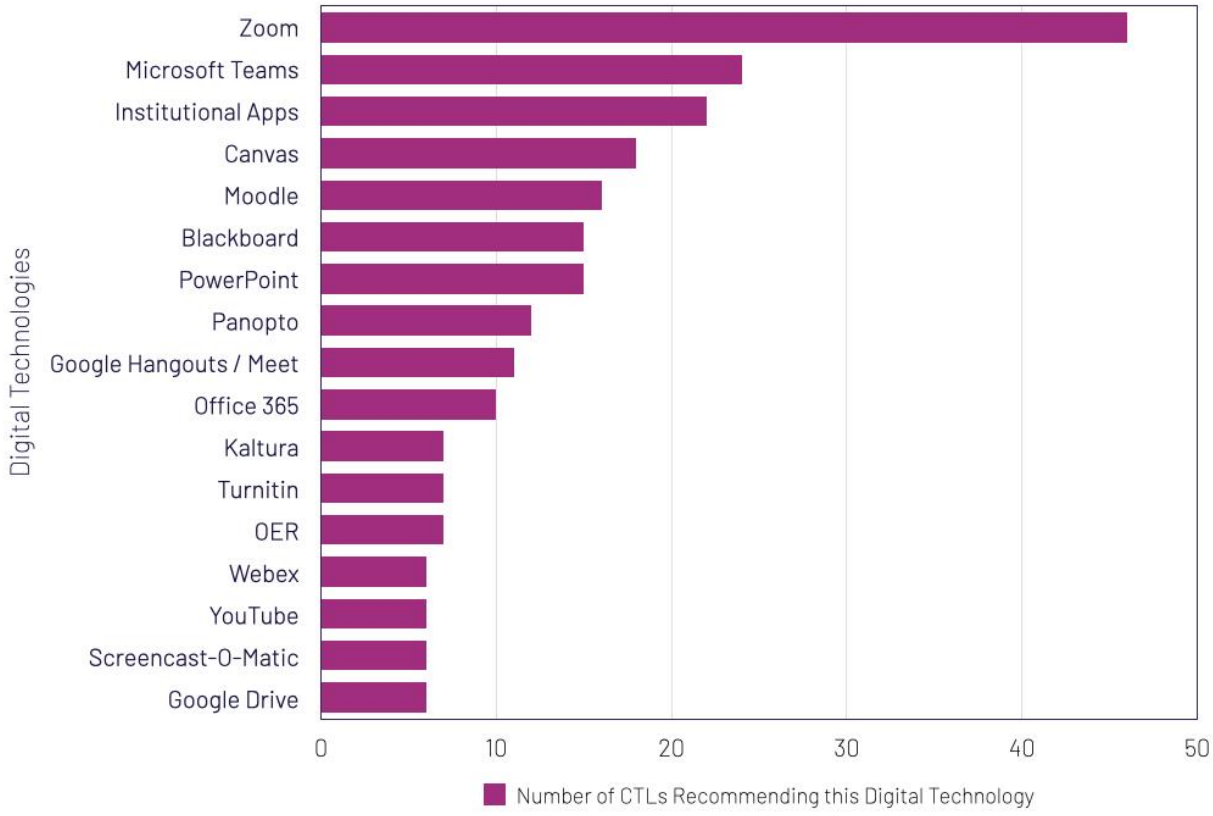
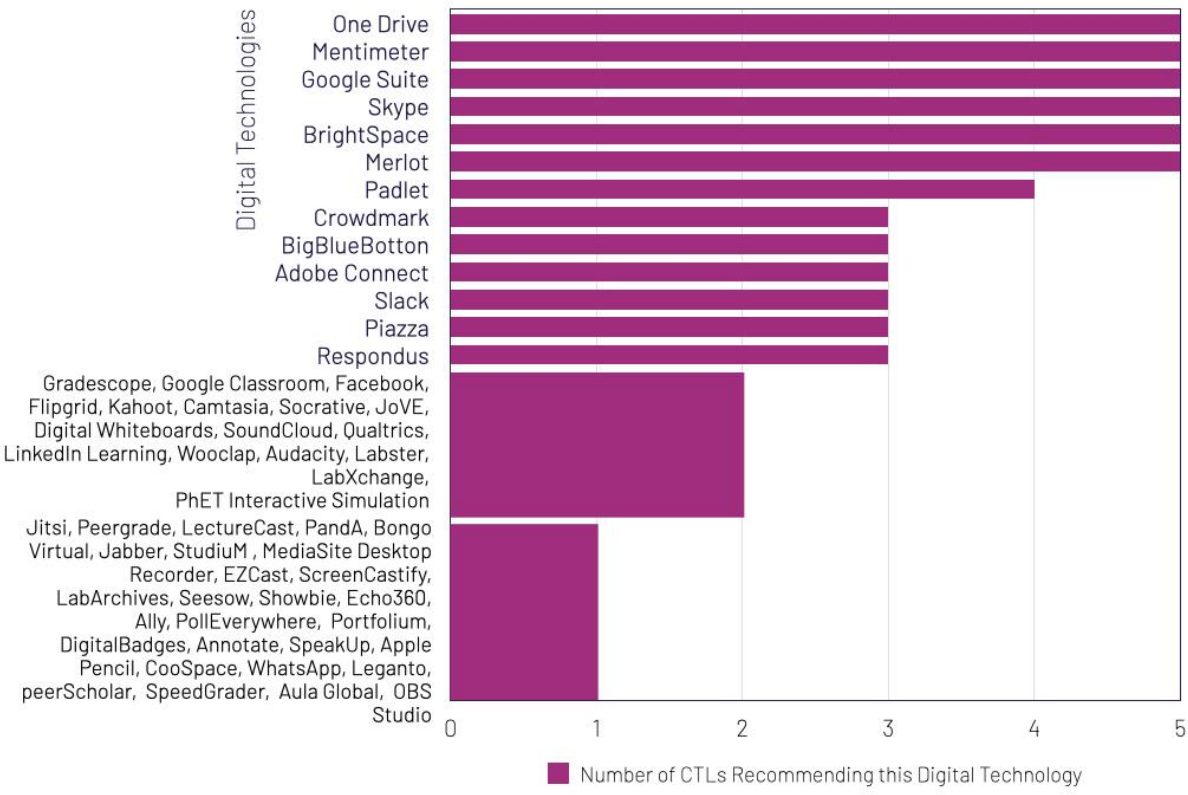


Figure 4 (b) - Digital Technologies Recommended by the Examined CTLs



Many universities and educational institutions shared resources and tutorials on how to use their own institutional apps and LMS. PowerPoint was specifically recommended for creating voice-overs in online presentations and recording video presentations. Podcasts were also suggested due to their pedagogical advantages and accessibility. Since listening to audio recordings implies less cognitive effort from students and does not require live-streaming or synchronous videoconferencing sessions, podcasts were highly recommended when a great amount of course content was to be delivered as well as to overcome internet bandwidth issues.

Digital technologies such as Peergrade, SpeedGrader, PeerScholar, Crowdgrader, ComPAIR, PeerMark and Canvas quizzes were recommended for evaluation and peer assessment. Panopto, Audacity and EZCast were suggested for podcast creation. Besides institutional email services which were the preferred means of communication with students, social media applications such as Facebook, WhatsApp, Remind and Slack were also suggested for communicating with students during the COVID-19 pandemic. Several technologies like Lecturecast, Screencastify, EZCast, Screencast-o-matic were suitable for video content creation. Regarding STEM courses, digital technologies such as Labster, LabEX and JoVE were frequently recommended to facilitate pedagogical continuity. Canvas, Moodle, and Blackboard were suggested for course design and repositories. Google Drive, One Drive, Slack and videoconferencing technologies such as Zoom, Microsoft Teams, Google Hangouts and Google Meet were recommended for collaboration.

Equity in Online Teaching and Learning

In the following discussion, we present the analysis we conducted of publicly shared resources on the topic of equity. Our findings indicate that 39 educational institutions out of our list of 68 included resources about equity and other equity-related terms. We present the characteristics of these resources, the equity groups and the recommendations provided in these resources to *ensure equity in online teaching and learning during the pandemic*.

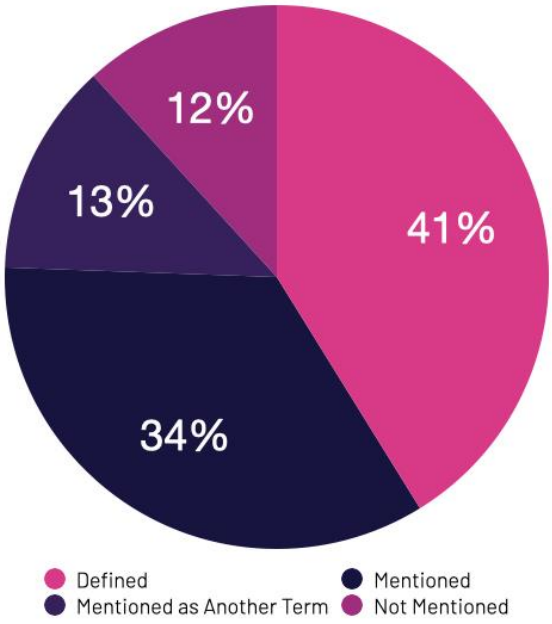
A kind reminder: In this white paper we postulate, as per Beatty' working definition, that *equity in higher education* is reached when all students are able to achieve equal learning outcomes as they are supported by institutions, faculty, and other systems to engage in the learning process. All students are able to receive the financial, social, and academic support and guidance they need to succeed in the institutional programs, thus enabling lifelong success as well. All students are given access to appropriate and effective learning opportunities - instructional resources, activities, interactions and evaluative assessment - which are differentiated according to their unique sets of characteristics and needs.

Was Equity Mentioned in Collected Data?

Out of 78 CTLs in our data, only 44 included resources about equity or equity-related terms. This means that only 56.4% of the CTLs addressed equity in online teaching and learning in response to COVID-19. When equity was included in CTL resources, it was in the following ways: (1) mentioned in a special website page, section or blog entry (75%); or (2) mentioned within texts in other resources and information (25%).

When equity was included in publicly shared resources, the concept of equity was either defined (2.6%); mentioned (10.3%); or mentioned as another term (43.6%). Figure 7 includes the 43.6% of CTLs in our data not mentioning or addressing equity in their publicly shared resources.

Figure 5 - Mentions of Equity
Within the Examined CTLs' Webpages



How Did the Educational Institutions Define Equity on Their Website?

From the total of 68 universities and educational institutions, only 2.6% provided a definition of equity. In these cases, equity was defined as an approach that considers individuals' unique characteristics to provide them with differentiated support and promote equitable opportunities. Such is the case of the University of Sherbrooke that defines equity as "an approach aimed at treating each individual, each group fairly, taking into account their particular characteristics in order to place them on an equal footing. It is opposed to uniformity in the systematic application of a standard without taking into account the differences and diversity of society. It aims to ensure that everyone achieves the same results and is entitled to the same benefits." (Gestion de la recherche, n.d.) [Free translation].

Equity was either explained in practical terms or simply mentioned when recommending pedagogical strategies or technological solutions in 10.3% of the analyzed resources. In these cases, equity made reference to remote equity access or other variants such as online equity, cultural equity, and web equity. For instance, some universities made reference to racism and respect for differences in academia, which refers to *cultural equity* (Americans for the Arts, 2019). This concept has been defined as the embodiment of policies, practices, and values that ensure that any person who is under-represented in policy development, because of race, ethnicity, religion, sexual orientation, or economic status, is guaranteed a fair hearing.

In 43.6% of the analyzed cases, other equity-related terms were used by some universities such as *inclusion* (Portland Community College, n.d.- a) -, *diversity* (Portland Community College, n.d. - b) and *ethnic equality* (University College Dulin, n.d. -b).These and more equity-related terms will be presented in the following section.

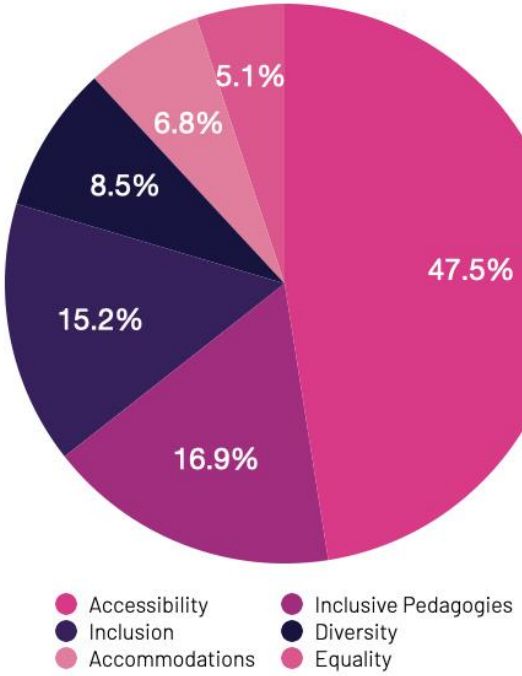
What Concepts Did These Institutions Associate with Equity?

As previously mentioned, few online resources included a definition of equity while some others included a mention of equity or mentions of other equity-related terms. Among the other related terms that were mentioned or defined, some universities use a combination of terms such as Equity, Diversity and Inclusion (EDI) as titles of sections that include resources and policies about Equity. Other universities opt for using one term only while others mention multiple terms. As an example of this, The Derek Bok Center for Teaching and Learning in Harvard University (n.d.) refers to multiple terms such as *equity and access* as well as *digital accessibility*.

The following equity-related terms were identified in analyzed data:

Accessibility (47.5%); Inclusive pedagogies (16.9%); Inclusion (15.2%); Diversity (8.5%); Accommodations (6.8%); Equality (5.1%)

Figure 6 - Equity-Related Terms Used by the Examined Institutions



Accessibility was the term most frequently mentioned in the analyzed resources. It refers to different dimensions of universal access. Combinations of accessibility with other terms like digital

or web were frequently referenced. For instance, the University of Virginia (n.d.) and Harvard University (n.d.) differentiate accessibility from *digital accessibility*. The former refers to affording people with disabilities the same opportunities to engage in the same interactions and academic experience of a person without disabilities while the latter refers to designing technology and online course materials in a way that it can be accessed by all users.

The ***inclusive pedagogies*** term referred to pedagogical approaches and strategies that aimed at promoting inclusion of students with different backgrounds and ensuring equity. The following terms were identified in the analyzed resources grouped under this term:

Universal Design for Learning
Inclusive Teaching, Learning and Assessment
Teaching inclusively
Inclusive Virtual teaching
Inclusive Remote Teaching
Inclusive Pedagogy
Anti-oppressive pedagogies

Inclusion referred to improving the participation in society of disadvantaged or vulnerable people. This term was mentioned multiple times along with other terms such as equity, diversity, and accessibility, but it was not frequently defined.

Accommodations referred mostly to special arrangements and considerations for granting access to course content to people with physical and/or learning disabilities such as vision, hearing, physical mobility or dyslexia, autism, and so on.

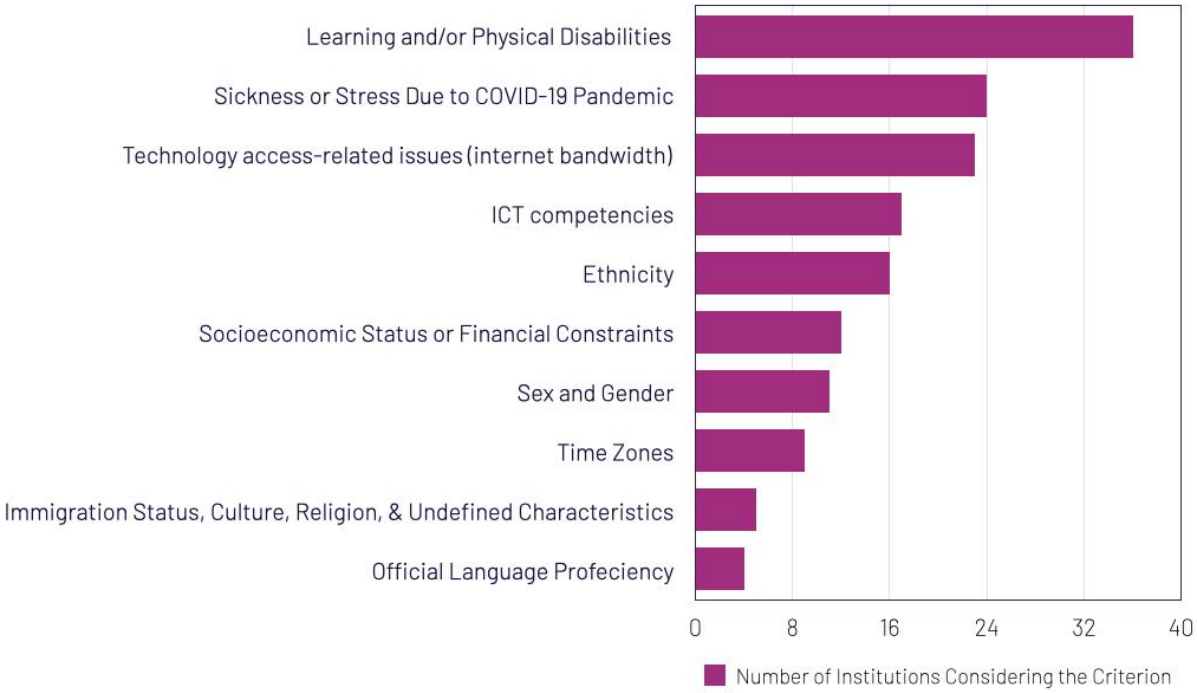
Equality was mentioned along with equity and accessibility. It was sometimes used to explain equity by focusing on the legal differences of both concepts (i.e., equality *vs.* equity).

Diversity referred to cultural, ethnic and religious differences. In some specific cases, it was also used to mention people 's gender, sexual orientation, race, ability, disabilities, and socio-economic status.

Who Were Part of Vulnerable Groups?

Within the resources that were publicly shared by the 44 CTLs in 39 universities and educational institutions that addressed equity, the following groups of students were considered as vulnerable or in disadvantage. These categories emerged from the collected data.

Figure 7 - Criteria Used by the Examined Institutions to Identify Vulnerable or in a Disadvantage Groups of Students



Students with physical and/or learning disabilities were frequently mentioned in publicly shared resources about ensuring equity and accessibility. This category included students with visual, hearing and physical mobility conditions as well as students with Autism, Asperger syndrome, and Dyslexia just to name a few.

Students who were sick or stressed due to the COVID-19 pandemic were also considered at disadvantage. This category included students whose routine was disrupted and were facing new challenges such as being the main caregivers of children at home, volunteering at community centres and super markets, moving out of university dorms and having to adapt to a new housing conditions, having to find new accommodation during the crisis, taking care of relatives who were sick with COVID-19, and those who were stressed adapting to the new realities of confinement.

Students with technology access-related issues were frequently mentioned as well. In particular, students facing internet bandwidth issues or lacking adequate technological equipment that was compatible with institutional digital technologies were considered vulnerable. For instance, students using mobile devices instead of computers and students using computers without audio and video capabilities were considered at disadvantage.

Students with insufficient ICT competency were considered at risk since moving courses online might have created accessibility issues when these students were not able to fully participate in course activities online or access online course materials. Information and Communication

Technology (ICT) competency refers to the set of knowledge, skills and attitudes required to use digital technologies for educational purposes (McGarr & McDonagh, 2019).

Students' ethnicity was also mentioned in equity recommendations and resources. For instance, BAME Students refer to Black, Asian and Minority Ethnic students in the UK (MyGlasgow - Human Resources, n.d.). Concepts such as racial justice and anti-racism were addressed in equity resources mentioning the case of George Floyd, a black American victim of police brutality in Minneapolis, Minnesota, a case that sparked protests across the USA and even at an international scale.

Students with a low socioeconomic status and students who were facing financial constraints were considered as vulnerable. This category included students who lost their jobs due to the confinement measures and students who were previously in need of financial aid.

Students' sex and gender, which referred mostly to members of the LGBTQ+ community, were also mentioned in resources about equity, diversity and inclusion.

Students' immigration status, culture, religion and other undefined characteristics were also mentioned in equity resources. This category included undefined minority groups, immigrants, vulnerable students with undefined characteristics, and students of diverse cultures and religions were also considered.

Students with limited English proficiency in English-speaking countries or non-native speakers of the official language were also considered at disadvantage in universities with international students since most of course content materials, information and communications were in English or the official language.

Students in different time zones were considered vulnerable since their presence in synchronous lectures or activities might have required special arrangements. In fact, CTL specialists recommended faculty members to provide asynchronous access to course materials and promote asynchronous activities and assignments.

What Recommendations Did These Institutions Share Publicly for Equity, Accessibility and Inclusion in Online Courses?

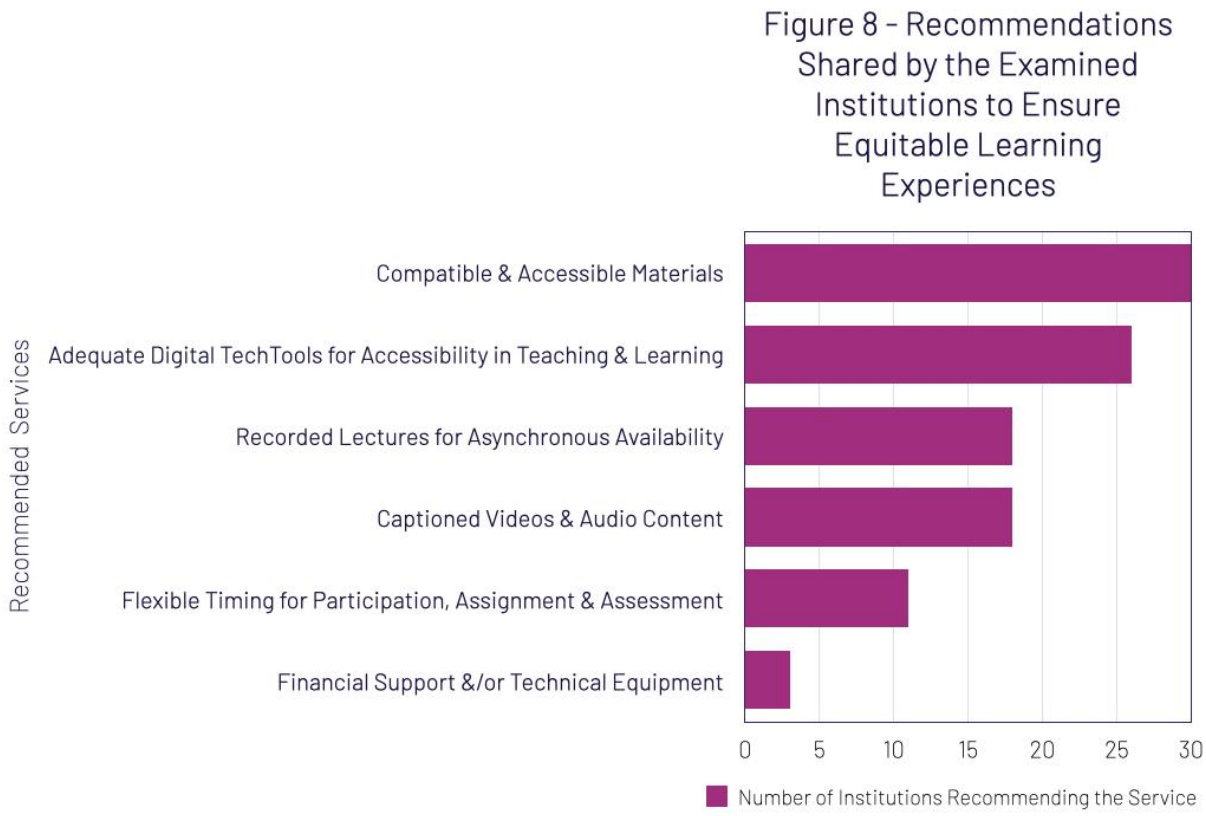


Figure 8 - Recommendations Shared by the Examined Institutions to Ensure Equitable Learning Experiences

Creating accessible materials referred to several dimensions of course content accessibility. For instance, document portability; sharing documents and materials that are compatible with assistive technologies such as hearing and visual aids; inclusive writing which is respectful and sensitive to students from different backgrounds; providing descriptions in hyperlinks and images; formatting text in easily readable colors and fonts; providing course content materials in multiple formats such as audio, videos, and text; etc.

Choosing adequate digital technologies to ensure equity was also mentioned in recommendations. For instance, a) using university supported digital technologies that do not require students to purchase additional licenses and that are supported by the institutional IT department in case troubleshooting is required; b) using digital technologies available for students in different time zones like international students in countries such as China where some digital technologies are banned by the government; and c) using specific digital technologies due to their accessibility features, such as Canvas (Young, n.d.) and Zoom (Indiana University, n.d.-b) that include some accessibility features for people with disabilities.

Recording lectures for asynchronous availability was a common recommendation to ensure equity and accessibility to course content. Given that students' routines were disrupted during

the pandemic, CTLs recommended avoiding synchronous lectures. Faculty members were advised to record their lectures and make them available for students to access at their convenience.

Captioning videos and audio content of these lectures and other recorded content was highly recommended for accessibility as well. Captioning facilitates access to course materials for students with hearing challenges and students using mobile devices in public places to name a few.

Planning for flexible timing for participation and assessment was also part of the recommendations to ensure equity. Mandatory confinement due to the COVID-19 pandemic implied significant routine disruptions for most of the population. In accordance with this situation, CTLs resources included recommendations for faculty members to adopt a flexible approach to student participation in online activities and flexible timing for student assessment. On the one hand, faculty members were advised to opt for asynchronous activities so students with children at home, or those who were sick and stressed due to COVID-19 would be able to complete them at their convenience in an asynchronous manner and therefore be able to comply with course requirements. Additionally, faculty members were strongly recommended to give priority to project-based assignments in order to promote asynchronous participation. On the other hand, faculty members were also advised to provide ample time periods for completing tests, exams, and other evaluations.

Providing financial support and technical equipment was not only a recommendation but also an initiative carried out by some universities and educational institutions to ensure equity and pedagogical continuity. Some departments and units in different universities facilitated access to and provided financial aid and technological equipment during the pandemic to students facing financial constraints.

What Are This Panorama's Limitations?

Educational institutions shared several resources to support online teaching during the COVID-19 pandemic through their CTLs. This panorama summarizes the results of the analysis of only a fraction of these resources. Public resources of great quality available in other languages than French and English were not included in our analysis. This exclusion constitutes a limitation. It is possible that due to the urgent need of transitioning to online teaching and learning, sharing resources in foreign languages like English or French was not a priority of CTLs in non-English-speaking countries. This results in a lack of stratified representation of countries in Europe, Africa and Asia and it constitutes another limitation of this analysis and should be addressed in future analysis and research projects of this nature.

Conclusion

This panorama of publicly shared resources to support the transition of courses online during the COVID-19 pandemic aimed to give an insight into approaches, focus areas and solutions developed by Centres for Teaching and Learning on the international scale. The synthesis of the main topics addressed in the analyzed resources reveals the concerns of faculty members and the topics of interest in the academic community, namely academic integrity, online assessment and evaluation, student communication and

student engagement in online activities**,** equity, accessibility and inclusion. Most institutions recommended the use of Zoom, Microsoft Teams or their own institutional apps and Learning Management Systems (LMS). To our team's bewilderment, almost half of the institutions we examined lacked resources on equity. This lack of resources reveals the need for institutional policies and measures to ensure equitable learning experiences to all students in universities and institutions around the globe. Those who did brought to light the commitment and the targeted efforts of a number of CTLs professionals were concerned in *ensuring an equitable learning experience* for a wide variety of vulnerable students. They set into motion a wide spectrum of initiatives, some in collaboration with government agencies, to fight inequity in online learning during the crisis. They took into consideration the condition of equity-seeking groups of students historically at disadvantage as well as recently identified, vulnerable students due to COVID-19 confinement measures when transitioning to online teaching and learning. They recommended, sometimes even strongly advised faculty, to create accessible materials, choose adequate digital technologies, record lectures for asynchronous availability, caption videos and audio content, and schedule flexible timing for participation and assessment. Some also spearheaded initiatives to provide financial support and technical equipment to students.

CENTER TO CENTER: LESSONS LEARNED AND RECOMMENDATIONS

Take Care of Your Team So They Can Take Care of Faculty

Share the positive feedback you receive from faculty with your team, this keeps them motivated, especially when the stakes are high, and the morale is down.

Help your teamwork as a team.

Involve faculty in your team.

Consider adopting a hybrid remote working approach for your team.

Respect the time your team needs for an efficient and effective process.

Put proper wellbeing policies in place. Mental health is beginning to be a challenge.

Value your team.

Flatten the hierarchy.

Compensate for staff gaps and low numbers with nimbleness and flexibility.

Implement an "All for One and One for All" approach within your team and with the variety of institutional units.

Support Working Smarter Rather Than Harder

Keep it simple, cognitive overload happens, even with faculty.

Be holistic, not a pigeonhole.

Establish a platform that allows you to immediately extract the needs of faculty with surveys.

Accept that change is hard, meet the faculty where they are, and celebrate small successes.

Know thy faculty.

Know thy students.

Personalise and scale up the care and after care.

Teach them how to fish.

Help faculty embrace a critical, ethical and equitable use of digital technology.

Practice Empathy with Your Teammates and Faculty

Find your experts within faculties and make the most of their insider perspective.

Listen to faculty members.

Create and nurture a safe space for faculty and inter-faculty exchanges.

Remind faculty to be empathetic and patient with students and to acknowledge their efforts.

Save some empathy for your team members.

Listen to students.

Communicate, communicate, communicate.

Reassure even when you don't have the answer.

Cultivate human relationships.

Find strategies to maintain faculty momentum beyond the crisis.

Conquer the Assessment Beast

Conquer the assessment beast with practical solutions.

It Is Time for You to Lead, "Just Do It"!

Shoot for the stars but acknowledge the limitations.

Stay ahead, get ready, and be proactive.

Have a voice.

Take risks, you have the right to make mistakes.

Many valuable wheels are out there, stop reinventing new ones.

Break the silos.

Give value to teaching.

Be ready to navigate the politics.

The following suggestions emerged from the lessons learned by centres and are summarized here to help all centres take advantage of early problems and solutions

Take Care of Your Team So They Can Take Care of Faculty

Share the positive feedback you receive from faculty with your team, this keeps them motivated, especially when the stakes are high, and the morale is down. Many felt there was a lot of gratitude from faculty, or even received formal thank you letters from faculty associations. Some received shout outs from people you never heard from before, others were in the newspapers. People have said to you 'Your team rose to the challenge'. Make sure that your team knows it. Working under continuous stress with high expectations is stressful - hearing that the work is appreciated makes the difficulties easier to handle.

Help your teamwork as a team. Teams who were successful in their reaction when the pandemic hit immediately identified their members' unique strengths and blind spots. The pandemic highlighted areas where people were comfortable taking responsibility for a task, making decisions and where they were not. They distributed the responsibilities accordingly. They complemented each other, made sure to stay cohesive, agile, well informed, and responsive. They rapidly developed a communication strategy to reach each other on the spot and to share resources needed by their team members. They were comfortable with each other and installed a culture of respectful constructive feedback. They also identified a couple of members who acted like buffers and kept everyone going in hard times, but they also made sure to give them time off to recharge and be energized again.

Involve faculty in your team. Faculty could be a great asset to your team because of their experience and their connections. Give them the responsibility to advocate for the centre and to provide you with a clients' perspective.

Consider adopting a hybrid remote working approach for your team. If your team felt isolated working remotely and craved the office warmth, others were more productive than ever with hybrid remote work. Many aspects of remote working are interesting to keep. Think about how to support a hybrid remote working arrangement in the future.

Respect the time your team needs for an efficient and effective process. *Chi va piano va sano*. The imposed timeframe and the speed to respond prevented teams from achieving the quality courses many are used to producing. Be clear about what you want your process to be and push back on timing where you can to make sure that you have the time to do it thoughtfully.

Put proper wellbeing policies in place. Mental health is beginning to be a challenge. Despite your online meetings and attempts for informal Zoom or Teams gatherings, your team members have been isolated for a while. They are worried about next semester. Nobody really knows what is going to happen. There is a lot of uncertainty, and some do not cope well with that. Make sure they take some time off and they think about their own self-care and burnouts. It is okay to take a vacation day. And don't forget to remind them to get up and stretch every once in a while.

Value your team. Your team is dedicated, committed, super creative, smart people. You give them a problem, they come up with amazing solutions. Let them know that you can lean on them, that they inspire you, and that you are awed by them. They deserve it.

Flatten the hierarchy. Flatten your decision-making structure. Take out the hierarchy element and empower your team to lead and to help you be successful. Identify the strength of each member and make sure to give them the chance to shine. And of course, work with them, have checks and balances. This will streamline decision making in a lot of ways to the benefit of the institution. Identify silos and open them. Create dynamic meetings where directors and different levels of employees share, brainstorm, and plan.

Compensate for staff gaps and low numbers with nimbleness and flexibility. When your team is small, equip and empower its members to become very nimble and very flexible.

Implement an "All for One and One for All" approach within your team and with the variety of institutional units. Put aside your professional autonomy for the benefit of the group - strive for genuine and productive collaboration.

Commentary: How to Ensure the Well-Being of the CTL Team in a Time of Crisis

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"Thank you again for all the hard work. It is greatly appreciated. "

From multiple people and groups, from very early on in the pandemic pivot and continuing to today, variations on the above message are what keep all of us going at Teaching and Learning Services (TLS). Centres such as TLS have become essential players in helping instructors create and deliver high-quality remote learning experiences for students in all disciplines, at all levels, in multiple locations and learning contexts.

The Herculean task of shifting campus-based in-person educational delivery to distributed technology-mediated education can only be accomplished if those of us in support roles maintain our energy and calm, our creativity and resourcefulness, and our empathy and responsiveness. This has created unprecedented challenges for leaders of such units.

The challenges to staff well-being are to some extent common to any major organizational transition, and so books such as Managing Transitions: Making the Most of Change (Bridges & Bridges, 2016) provide useful insights. The current context added an enforced Work From Home regime, often surrounded by children and partners, which places additional demands on scheduling, organization, work-life balance, and mental and physical health for which Zakrajsek (2020) suggests strategies. And the emotional and physical toll of the grieving process resulting from our collective and individual losses requires acknowledgement and processing as Berinato (2020) so clearly explores. Drawing on these, and other similar resources, as the director of a centre I had to help staff face four types of challenges: isolation, new ways of working, burnout, and morale. While each individual staff member developed their own personal coping strategies, as a unit we set up the following structures and strategies to provide collective support.

1. Isolation: We instituted daily Zoom check-ins (actually twice a day in the early days) to maintain the sense of a team and provide people with an opportunity to see and talk with colleagues that they were used to having within two metres. These daily check-ins continue and there are always at least a few people who show up and chat. Within our common chat tool (in our case Teams), we created a unit-wide group that mitigated the absence of casual conversations and became our virtual kitchen whiteboard.
2. New ways of working: Teams complements Zoom, OneDrive, and OneNote to support our new way of collaborating. As we transitioned and understood the evolving needs, we were careful to keep egos out of the decision-making process and take an approach of course correction: if the proposed way of working didn't work, then

acknowledge it, look for alternatives, and move on without seeking to assign blame for any failures. Now, five months in, most would agree that we've found our rhythm—we have overcome the challenges to a great degree and are able to work productively and efficiently remotely. But it was not automatic, and the adaptation process will continue.

3. Burnout: "Don't let the perfect be the enemy of the good" has become the new guideline--we have learned to strive to be "good enough" instead of our customary push to "excellence". In a high performing unit with unreasonably high expectations put on us to solve problems that were often outside of the direct experience of any of us, adjusting our own expectations of ourselves was key. In addition, all staff were given significant autonomy to set work schedules that allowed them to manage their particular circumstances—for some this meant stopping in the middle of the day, for others doing work in the evening, and sometimes days off. The final piece was to keep reminding ourselves not to take others' frustrations personally, but rather to try to figure out where the anger and frustration were coming from and work together to address the source. Everyone needs to vent and let off steam—we had to feel safe doing that with each other.
4. Morale: The initial adrenaline rush of "classes are cancelled for two weeks and then everything has to be remote!" carried us through the first crunch. But you can't keep up a sprint pace in a marathon, so slowing the pace was key. We had an enforced stop, where the unit was closed for a week to allow people to catch their breaths. Knowing that your work is having an impact is a powerful motivator, so looking at evidence of impact (8,000 website hits in June 2019 vs. 37,000 in June 2020!) and sharing all the messages of thanks really provides a boost, as well as having members of senior administration provide direct and personal thanks. Finally, being as transparent as possible about the decision-making processes, with advance notice where possible of upcoming decisions, and providing as much context as possible means that staff can have confidence in the process.

Maintaining well-being requires ongoing vigilance, good will, and communication. It is now clear that we will never go back to how things were, but that there will be a series of "new normals" that will emerge and evolve over time. As individuals and as a unit, we know that we have to put on our own oxygen masks first, and keep them on, if we are going to be able to continue to provide the support that the university community needs to move forward effectively.

Commentary: How to Onboard New ID Hires and Prepare Them to Calibrate the Support or Accompaniment of Professors

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With the acceleration of online learning to contain the COVID-19 pandemic and the requirements for social distancing, higher education establishments were forced to swiftly convert the delivery mode of face-to-face courses into online courses. This was quickly identified as emergency remote teaching. However, as the pandemic persists, colleges and universities are using the summer of 2020 to assist their teaching personnel move their courses online in preparation for the fall 2020 semester.

Deemed the "sherpas of online learning teams" (Decherney & Levander, 2020) during the COVID-19 university shutdown in 2020, instructional designers (IDs) have never been this in demand in higher education. Before the COVID-19 crisis, IDs were already in the crosshairs of the digital transformation when workforce prediction positioned them as key actors in the digital transformation processes (Naffi, Davidson, Jawhar, 2020). With the magnitude of the COVID-19 crisis, their skillset became more in demand than the IDs that are ready for the market. With the sudden swell in demand for online learning, CTLs and online course delivery centres hired most IDs that were workforce ready and even some who were not.

In this article, we make suggestions about how CTLs can onboard new ID hires and prepare them to calibrate the support or accompaniment of professors. While not mutually exclusive, they have to think of two broad categories of services: 1) Supporting and accompanying faculty in transitioning from face-to-face to online format. Some of them might feel intimidated by the technology, while others might feel overwhelmed by the nature of the social interactions that happen online; 2) Supporting and accompanying of professors who have already been teaching online and wish to improve their courses or have the ambition to innovate in their online courses. This usually involves modifying their pedagogical approach which can have ramifications in the content covered by the courses, the objectives or the competencies and the assignments and evaluations.

The work of IDs is multi-faceted. According to the Institute for Performance and Learning (2020) they must possess six categories of competencies: 1) assessing performance needs; 2) designing curricula; 3) designing learning experience; 4) facilitating learning; 5) supporting transfer of learning; 6) evaluating learning. IDs usually receive the knowledge and primers to develop the underlying skills during the initial training they receive and reinvest them in their professional activities to develop the competencies over time.

In the context of online learning in higher education, most of the work of IDs fits within the third category: designing learning experience. They must aim to provide technical and pedagogical support that faculty need to create a successful online learning experience (Halupa, 2019). To do this, they must possess the skills to use the learning management system (learning management system, course management system) and software (e-learning authoring tools, media creation tools) available to create course content, become familiar with the course content they are working on, learn to listen to faculty and form a partnership with them, provide advice on how to implement various activities and practices depending on the chosen pedagogical approach, design online modules, validate content with faculty as subject matter experts, provide technical advice to match the learning experiences within the affordances of the technological environment in which the course will be delivered. However, in some cases, they will also engage in learning needs assessment, design and facilitate workshops, support transfer of learning and participate in developing evaluation instruments.

Many categories of new ID hires

Most new ID hires have some form of formal training (either a graduate diploma or a master's degree) in instructional design or educational technology. Some are hired without field experience, but they have been trained to engage in the six categories of competencies mentioned above. Some also have professional experience outside the context of higher education, or outside the field of ID. Some have experience in the field of ID outside the context of higher education. Some have experience in higher education but no experience in ID. There is another category of hires who do not possess formal training in ID, but they have transferrable experience that is deemed useful in the context of higher education. These can be temporary hires that can provide just-in-time support when the demands are surging.

These new hires will face different scenarios when dealing with faculty members, as illustrated in Figure 1.

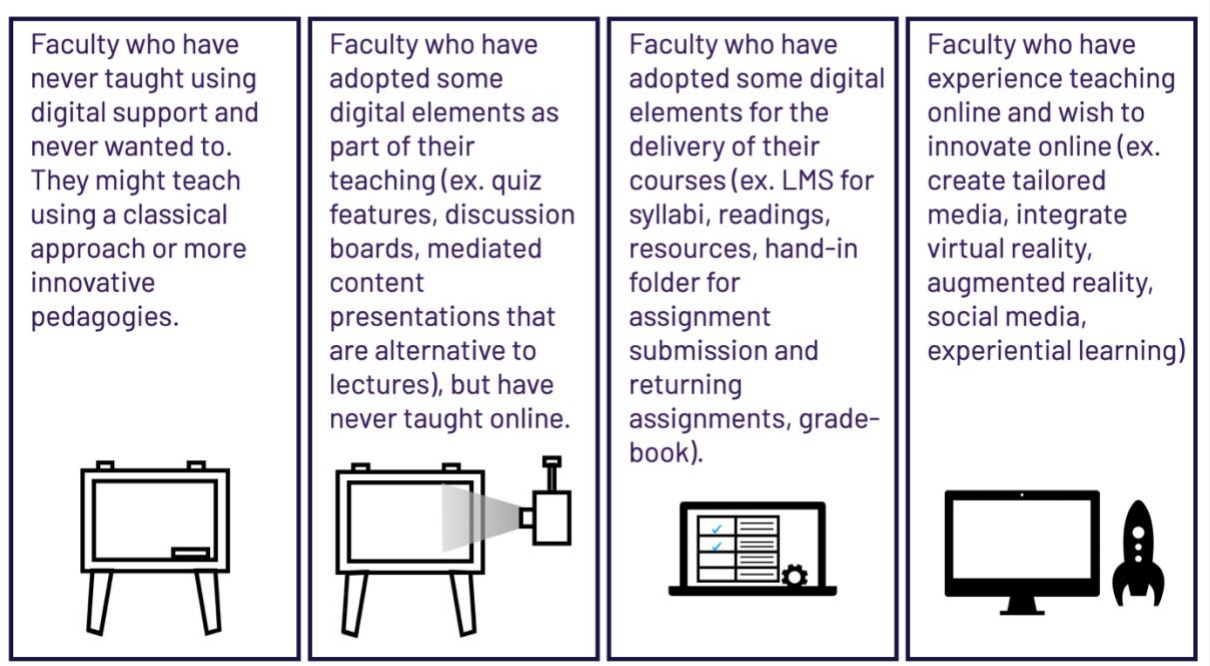

Figure 1: Categories of faculty members based on their level of experience in teaching online

Tips to quickly onboard new IDs

Given the wide variety of new ID hires, the various categories of faculty members and the lack of time to fully onboard every new team member, we are offering various tips for practice to quickly get them ready to be integrated to the CTL teams.

We assume that IDs who have been formally trained or are deemed competent enough to be hired for specific tasks have the necessary knowledge and skillset to settle into their new roles, but several strategies will be essential to successfully flash onboard them. In the current context, we posit they will need to get introduced to the projects, set expectations for communication and anticipate future areas of challenge, as per Table 1.

Table 1: Onboarding categories

Categories of onboarding activities	What IDs need	Documents to prepare
Get introduced to the projects	• Be introduced to the team members (other instructional designers, graphic designers, multi-media experts,	• Project brief • Materials (past and present) • Templates

	developers, quality assurance personnel, project leads, supervisors) • Description of the projects • Clear objectives • Deadlines • Clear expectations for roles and responsibilities based on institutional culture and staffing • Receive clear parameters for amount of time to spend on any particular project	• Gantt chart or project organization (time, resources, hours, roles) • E-learning authoring software • Computers (if required) • Logins and passwords • Who's who
Set expectations to communicate with team members and faculty members	• Description of communication channels with team members from the Centre for Teaching and Learning • Description of procedures to communicate effectively with faculty members • Description about how to build rapport and trust with faculty members	• Sample email to team member • Sample conversation between team members • Sample email to faculty member • Sample kick-off meeting organization • Sample facilitation meeting
Anticipate future areas of challenge	• Analysis of activities and tasks to be accomplished • Analysis of wanted competencies versus current competencies (knowledge, know-how, abilities, skills) • Identification of required resources to complete projects • Identification of strategies to deal with faculty resistance and to build rapport with faculty	• Project guide sheet • Project milestones • List of available resources • Tips to work with faculty members • Various samples of course designs, assignments and evaluation instruments

Once these onboarding activities are covered and the corresponding documentation is available, the team will need to focus on developing leadership capacity. This will involve assessing your staff current capabilities and leverage internal resources to provide upskilling (training, mentoring, coaching, shadowing, etc.) and facilitating an intake and project management process to quickly be able to match faculty with the right support and accompaniment for their needs and to manage projects to available capacity.

Commentary: Towards a Multilevel Distributed Model for Faculty Support

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"Learning and adaptation are best driven by coalitions of activists embedded in social networks at multiple levels of the organization that serve as catalysts to spur organizational learning through social interaction" (Hannah & Lester, 2009 p. 35).

Hannah & Lester's quote, inspired by Hamel's thinking in his book "Leading the revolution" (2000), captures well the dimension of agility found in the University of Ottawa's strategic plan Transformation 2030, and reflects the philosophy and dynamics of the distributed model of techno-pedagogical support that we are gradually putting in place at the University to respond to the transformative impetus unleashed by COVID-19.

As with most post-secondary institutions in Canada, in March 2020, faculty members at the University of Ottawa were faced with the need to adapt their teaching approach and ways of delivering their courses in just one week. This was a real transformation for the University, which had on average only 2% to 3% of online distance courses offered before March 2020.

The demand from the different faculties in terms of techno-pedagogical support was clear: a differentiated approach that moves away from standardised, theoretical and generic training, and which favours specialised and teacher-centred support, attentive to the disciplinary and cultural particularities of each faculty.

Hence the suggestion by the deans of faculties to identify, within their own faculty, 2 or 3 professors with a reputation for teaching excellence and innovation (verbatim: "outstanding teachers including, but not limited to, "distance-learning teachers"), both to serve as a clearinghouse of best practices across faculties and to assist the Teaching and Learning Support Service (TLSS) in responding to the specific needs and cultures of each faculty. It is interesting to note that when the Office of the Vice Provost, Academics, contacted these outstanding professors (OP) individually, informing them that they had been identified by their dean with the goal of collaborating with the SAEA because of their outstanding teaching, their responses were unanimously positive, excited to contribute, and honoured to see that their commitment to quality and innovative teaching was recognized by their faculty executive.

As a result, the TLSS was able to assemble a group of 40 OPs from all ten faculties to draw on to:

- Exchange among themselves and with other faculty members, practices and pedagogical approaches for online and distance education;
- Share teaching resources they have developed themselves or found particularly useful, which are also added to the resources developed by the TLSS on its web site;
- Participate in or facilitate training webinars to offer their testimonials and suggestions to their peers.

This approach echoes a form of mentoring or peer support whose benefits have been demonstrated for several decades (Anderson, Varnahagen & Campbell, 1998; Sommer, 2002), but also builds on more recent work that demonstrates the transformative potential of informal conversations between instructors about their teaching. These informal networks are generally (but not exclusively) localized at the department and faculty level, build trust, are potentially long-lasting, and are seen by faculty members as useful for sharing new information and perspectives on teaching and learning, and for receiving pedagogical support (Roxå & Mårtensson, 2009; Paradia et al., 2014; Poole et al., 2019).

The mention made by the deans in the parenthesis to describe the characteristics of these 40 OPs is important: "outstanding teachers (including, but not limited to "distance-learning teachers)". Indeed, placing the emphasis on the experience and pedagogical reflection of these outstanding professors, and their ability to communicate this reflection to their peers, rather than simply focusing on technological know-how and expertise for online and distance education, helps to mitigate the resistance and apprehensions of some faculty members in the face of this radical and rapid change that they are being asked to make (Anderson, Varnahagen & Campbell, 1998; Germain-Rutherford, 2006).

In order to strengthen and monitor this peer support approach, the TLSS has also assigned to each faculty an Educational Specialist (ES) whose role is to identify and manage, with the faculty he/she is associated with, the needs of instructors, and to offer, individually or in collaboration with OPs of the faculty, technical-pedagogical support to faculty members who request it, or to direct them to the more specialized expertise of programmers, web developers, graphic designers, multimedia specialists, IU/UXs, and technicians of the TLSS for larger projects.

The objective of this distributed approach is to foster a relationship of trust and mutual understanding between faculty members and the ES by developing a common language and, for the ES, to deepen disciplinary local expertise and gain a better understanding of the faculty culture in which they operate.

In addition to this, TLSS also offers training on technological tools to teaching assistants (TA) or Work-Study Plan (WSP) students hired by the faculties. The role of these students is mainly to help

professors set up their online courses on the learning management system, thus complementing what could be referred to as the "proximity hubs" of techno-pedagogical support within the faculties.

The progressive implementation of this differentiated and distributed model makes it possible to mobilize multi-level intervention strategies, whether at the level of the individual (localized and informal conversations with OPs), at the level of networks, or proximity hubs of techno-pedagogical support (ES, OP and TA/WSP), and at the institutional level with the TLSS and its multimedia and online production teams, through its series of training workshops offered to the entire community, and its online resource site.

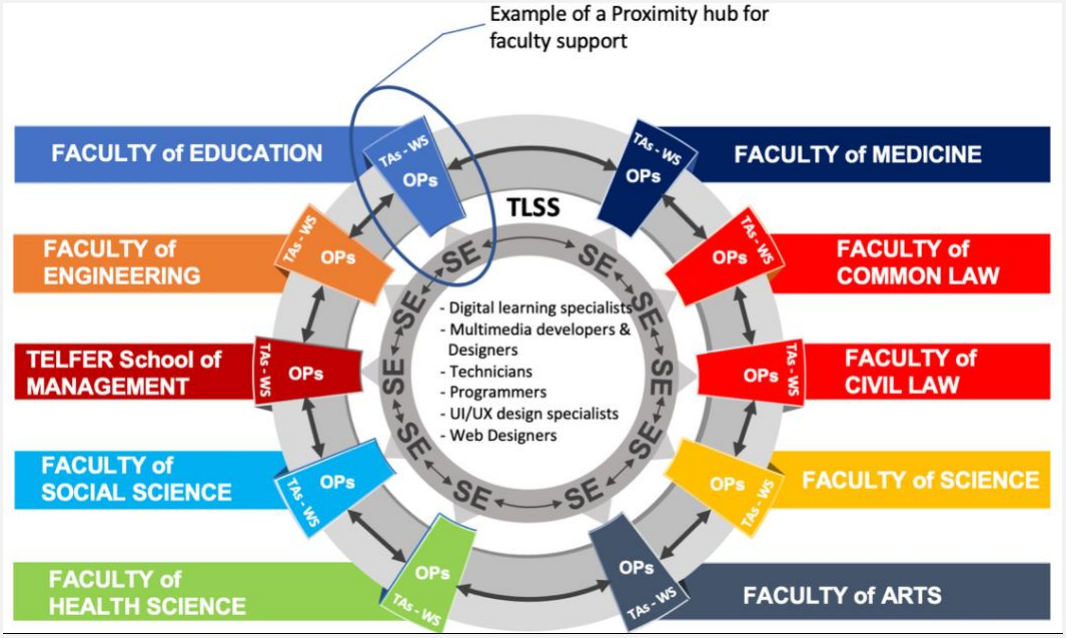

Figure 1: Representation of the Multilevel Distributed Model for Faculty Support

It is hoped that, as this model develops over time, these hubs of proximity within faculties will become networks or communities of transformation (a community of transformation, as opposed to a community of practice, *"departs significantly from existing practices and values to create an innovative culture and reality"* (Kezar & Gehrke, 2015, p.17), by collaborating with other hubs on innovative interdisciplinary and inter-faculty projects.

According to Kezar & Gehrke, these communities of transformation, in a distributed leadership model, have the capacity "*to grow to leverage increased change at the systemic level. The strategy of communities of transformation, namely empowering individual faculty members through enthusiasm and philosophical engagement, works from the ground up to complement other efforts to change reward structures or disciplinary values"* (2015, p.82).

Commentary: How to Work in Partnership Across Institutional Teams in Order to Bring Expertise, Experience and Creative Individuals Together

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The Coronavirus pandemic has highlighted the significance of a number of important values, capabilities and behaviours. Chief among these is the ability to work in partnership across institutional teams in order to bring expertise, experience and creative individuals together. There has been a lot of commentary about how learning technologists are key when we are all trying to 'pivot to online'. That is undoubtedly true, but they alone cannot achieve what is required in fundamentally changing institutional approaches. What I have seen and experienced more recently than at any other time in my career, is the benefit of bringing together a range of different academic and professional services experts with varied disciplinary and professional expertise. Their roles and perspectives working together and in partnership with students, has led to rapid yet informed and supported change within the organisation. Although the timescales and conditions are not of our choosing, the response to the pandemic has highlighted just how effectively we can collaborate and focus on shared objectives.

It is often said that large organisations like Universities tend to work in silos and communication can be a challenge. In recent years at the University of Glasgow, we have worked hard to create multidisciplinary groupings around our learning space design – learning from the experience of colleagues at McGill and San Diego State in particular. We have created shared principles that underpin how we design active learning spaces on campus and which address everything from the educational purpose of the space, learning and teaching practices, the layouts and furniture, to the lighting and acoustics. Working in teams that bring together colleagues in estates with expertise in building and space design, colleagues in IT with expertise in acoustics, emerging technologies, and system integration, colleagues in academic development who can support changes in curricula and assessment, academic staff who teach, and students who represent our diverse student cohorts, has caused us to entirely rethink how we understand, configure and use learning and teaching spaces. This rich network has grown over time and we have developed a shared understanding of our respective contributions and our collective goal through testing, trialling and using new types of space.

When the pandemic began to take effect and we were required to pivot to teaching online, although the challenge was considerable, we quickly drew on these existing networks and approach, but there was more still to learn. Typically, decision making is done through regular committee meetings, through processes that require time to take effect, and this serves us well under normal conditions, but not so well in conditions of crisis. Thus, we had three key priorities:

- To draw meaningfully on our existing multi-disciplinary networks and simultaneously create tight, responsive and focused teams to progress aspects of learning and teaching policy and practice in preparation for remote and blended learning;
- To support these teams with senior organisational representatives to lead that activity and to take decisions in timescales that would allow us to respond quickly and effectively to the ever-changing landscape; and
- To open up opportunities for consultation that span our usual committee structures and allow a creative and responsive conversation that would inform the central teams whose efforts were directed at supporting the institutional change towards remote and blended learning.

What did we achieve?

We created new resources initially within the first 3 weeks of the shift to remote, and more fully in the months that followed, for students and staff. These resources evolved in light of staff and student feedback and focused on:

- Studying online, using learning resources, netiquette, and engaging in online classes
- Redesigning teaching and assessment to support active learning online, peer engagement, independent learning, relationship-building and feedback (among other things)
- Practical matters of adapting lectures and small group teaching, making best use of the VLE and using a range of learning technologies to achieve our objectives.

Accompanying the resources and guidance were a suite of lunchtime upskilling sessions for staff, to demonstrate technologies, explain the guidance and show how colleagues were adapting their teaching.

How did we do this?

Online collaboration tools were crucial to coordination, enabling multiple authors and sharing of draft materials, and creating new online communities of practice to rapidly build and share knowledge, co-create solutions to problems and escalate issues requiring investment and decisions.

We benefited significantly from project management support and a small core team who worked across all areas of our activity in coordinating and enabling roles. This allowed continuity of approach, and these coordinators and project managers developed a comprehensive understanding of all the inter-connected elements of our work and our organisation's processes and systems. This was particularly important in aligning policy decisions with systems development to underpin online assessment which, at scale, was new to us.

A small team with expertise in teaching, student support and student learning development, authored most of the student facing documentation and another small team with expertise in academic and digital development, academic policy and learning enhancement, drafted the staff facing documentation. These resources were compared so that they mirrored one another. The small team approach allowed continuity and coherence in approach, but crucially, all materials and approaches when in draft form, were subject to scrutiny from a wide group of students and staff who would not normally have met together and who spanned many layers of the organisation's committee structures. Operating as critical friends, they would comment on guidance and challenge and validate the approaches being developed, so that we could meet the needs of a range of staff with very different levels of experience and confidence in teaching online.

We also sought volunteers, crowd-sourced documentation, experiences, case studies and staff inputs to generate the 'ingredients' for the resources we created. This had the advantage of being able to draw on practices that work in our own University: in times of crisis, such reassurance is very important to staff who are making significant changes to their academic practices under pressure.

Commentary: The Faculty Fellows of the LAU Center for Innovative Learning

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Two years ago, the Center for Teaching and Learning at the Lebanese American University (LAU) was renamed as the Center for Innovative Learning (CIL) in order to send a community wide message that LAU is shifting from instruction-based teaching to student centered learning. This was paralleled with a restructuring of the CIL that made it a unit that is run by faculty members for faculty members. The center is administered by the assistant provosts and co-directed by a staff member who takes care of the day-to-day affairs, organization, and logistics.

At the core of the new structure are the CIL Faculty Fellows who serve as advisory board, mentors, workshop facilitators, and most importantly are the champions of pedagogical innovation across the campus. Any LAU Faculty member is eligible to become a CIL Faculty Fellow upon the successful completion of the CIL Faculty Fellows Program. This program is running each academic year, has so far graduated six faculty members in the first year 2018-19, and is graduating another twelve in the current year 2019-20. The program will scale up by attracting between ten and fifteen faculty members each year, knowing that this represents between 3% and 5% of the total number of LAU fulltime faculty members.

The program is initiated each year by a call for proposals to all faculty to suggest a pedagogical innovation to a course they are planning to teach in the upcoming academic year. The call for proposals may set certain priority areas such as educational technology and gamification. Due to the COVID-19 pandemic, a major emphasis was given to online and blended education during the current academic year. Following a thorough review process by the CIL Faculty Fellows and the Provost office, a number of proposals are accepted.

The CIL Faculty Fellows in coordination with the Provost office will consequently set a 4-week long program that educates the participants and supports them in completing their proposed tasks. The program includes a series of workshops, webinars, short courses, supported work time, group discussions, and student feedback sessions. The covered topics typically include course design methods, innovative pedagogical methods, online and flipped delivery methods, introduction to MOOCs design and delivery, introduction to Virtual Reality and Augmented Reality, use of social media in education, multimedia design, and gamification of courses. Some technical seminars or workshops enhance the effective usage of tools such as the learning management system (Blackboard), the video conferencing system (WebEx), and course development tools such as Articulate. The participants will

also have the chance to record lectures using our studios and to explore the different tools such as the light-board, Wacom, or Smart board. Each week starts with a meeting between the participants and the Fellows to discuss the topics that will be covered and lead the participants into some technical asynchronous lectures. The week is ended by a discussion and feedback session by which the participants present their progress to the Fellows and some selected students. The participating students are nominated by the participating faculty members; some of them have taken the course they are working on or will potentially enroll in it in the near future. By the end of the program, each participant shall be equipped with the knowledge and skills needed to complete the proposed course renovation. They should also have completed a full plan and worked on various components of their proposed courses.

During the upcoming semester, each participant in the program completes the development and delivers the course. In the following semester, a public presentation and discussion session follow, in which the participants present their new courses, the lessons learned and the student feedback. Following this session, the current CIL Faculty Fellows discuss and vote on which of the participants who successfully completed their proposed tasks will join as new CIL Faculty Fellows.

Many faculty members at LAU are interested to join the program, primarily because it establishes strong connections between the participating faculty members across programs and schools. It also establishes new connections with colleagues who request their help. Furthermore, the graduates of the CIL Faculty Fellows Programs are honored by the President and the Provost and their Deans on numerous occasions. They are made the pedagogical champions of LAU. Furthermore, we reward the participants with symbolic financial remuneration and in some cases with course releases.

Furthermore, being the champions of pedagogical innovation, the CIL Faculty Fellows were the main support for all LAU faculty members to help them properly transition into online education at the onset of the COVID-19 crisis. For example, the Fellows organized public webinars and virtual workshops including school specific workshops. They also set a course on our LMS for faculty to learn about online education and interact with the Fellows and among the faculty at large. Finally, the CIL Faculty Fellows individually mentored numerous colleagues and supported them to pick up the pace in online education. Currently, they are preparing plans to support their colleagues for the upcoming COVID-19 plagued Fall 2020 semester, that is planned to be offered either as online or hybrid depending on how the pandemic will evolve. In our opinion, they were a much needed and exemplary support for their colleagues throughout the current crisis.

Our advice is for all universities to figure out ways or similar programs to involve their faculty members in the Teaching and Learning centers and most importantly in supporting their colleagues during these unusual times. We understand that universities may have difficulties in establishing such programs and graduating faculty members in a short duration; however we are sure that each university has some faculty members who excelled in online education during the COVID-19 crisis or even before; our recommendation is to incentivize those like we did in our program, by making them the

pedagogical champions of the university (advertisement especially by the senior administration), giving them a clear role in mentoring colleagues and running workshops, and potentially offering them financial incentives or course releases. Faculty members listen best to their colleagues and are always willing to learn from them.

Commentary: How to Mobilize Faculty Members Around a Common Approach?

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March 11, 2020 – the World Health Organization reports that we face a pandemic. The hours and days following this announcement marked a real upheaval in our teaching practices, our management practices... and our lives in general. At the Faculty of Education, the faculty executive quickly passed into crisis management mode to ensure the continuity of teaching and our essential activities in a context that was emerging before our eyes. Each day began with an executive meeting. According to a phrase that came up frequently during this period, we felt like we were building a plane in midair. During these first weeks, faculty members worked hard to adapt their courses in order to allow the students to continue the learning necessary for their training. The work accomplished in such a short time was absolutely remarkable. However, despite individual efforts that were made, it quickly became apparent that this would not be enough in the long run. The pandemic would not disappear quickly, and it was essential to project ourselves into the next academic year, despite a shifting ground with health guidelines evolving constantly. Time was short and we had to make strategic decisions quickly and mobilize our teams to move forward based on shared principles despite great uncertainty about the concrete modalities of our actions.

We opted for setting up a small squad responsible for working in an agile manner on the upcoming educational transition. The Dean entrusted me with the responsibility of this squad made up of a colleague who is an expert in higher education pedagogy (Didier Paquelin) and our executive director (Nathalie Grondin). Our main challenge was to break down organizational silos by exchanging information as smoothly as possible in order to mobilize our community around a common approach. Among the main principles that we have put forward, I highlight the importance given to the diversity of student experiences, especially of first-time students, those with family responsibilities, as well as international students. We have encouraged the implementation of a variety of approaches and methods to support students in their learning, while paying attention to their engagement and socialization in their program. In the same vein, we took into account the continuum of experiences and the level of comfort of faculty members with the various practices of distance education in order to offer appropriate support. We have moved in this direction in three stages.

As a first step, we had to ensure a continuous exchange of information and consultation in order to take into account the realities of the departments and those of the programs through frequent meetings. The technology and pedagogy advisory group, which brings together representatives of departments and educational consultants, has also met more frequently to guide the faculty executive. These meetings were an opportunity to bring new information to the table as we received it and to share concerns experienced by members of our teams day-to-day. These meetings, although fairly informal, were crucial to ensure the consistency of our respective actions. This is how we were

able to plan the modality of classes for the following semester, paying particular attention to practical activities requiring face-to-face teaching on campus in order to achieve the training objectives. In the end, online courses (synchronous and asynchronous) were clearly favoured over co-modal teaching by our faculty members. How can we explain these choices? The perceived complexity of co-modal education, the need for support to simultaneously meet the needs of students in class and those online, the constraints linked to social distancing, in addition to the risks of contagion associated with being on campus, are all reasons that can shed light on these choices.

Second, we put in place means to support teachers who had great concerns about transforming their fall classes (and challenges in their personal lives in general). A portal was created to bring together the various actions carried out and share the resources available to support the educational transition. A series of webinars (11) was organized around various themes ranging from principles guiding the transformation of a course, interactions in large groups, video clips production, assessment, well-being, etc. Colleagues have been invited to give talks in these webinars drawing on both their expertise and their personal experience. It was an opportunity to share views in a space of trust in order to progress each at our own pace. The simple fact of meeting up with colleagues experiencing similar challenges was sometimes enough to reassure oneself and gain the courage to take pedagogical risks.

While this collective space was essential in giving meaning to our respective actions, the fact remained that the work to be done was colossal in order to ensure optimal conditions for teaching and learning. This is why, in a third step, we have set up a brigade of teaching assistants to support faculty members in the transformation of their courses. This team of students came to lend a well needed hand to the techno-pedagogical support team, which played a key role throughout this operation. This brigade brought together various student profiles; some assistants had more mastery of disciplinary content while others had skills in educational technology. The assistants were trained and closely supervised by professional educational consultants who form our team. A collective dynamic was put in place through daily team meetings, allowing the sharing of experience and the collective search for solutions to the challenges raised. Gradually, collaborative work between assistants who could provide complementary skills was put in place. According to the testimonies received, this work experience was extremely formative for the students recruited and they feel they have been able to contribute to an important mission.

On the eve of the fall semester, the work is not completely done, but it is clear that our faculty is very well positioned to provide high quality online education. Looking back, I would say that what emerges the most from this experience is the expression of a learning organization which, thanks to the contribution of each person, has been able to progress in the appropriation of new teaching methods, while facing a highly unusual situation. Going forward, what will remain of all these efforts after the pandemic is over? I would say faculty members who adopt a flexible approach, dare to innovate pedagogically and build on a collective dynamic to better move ahead together.

Support Working Smarter Rather Than Harder

Keep it simple, cognitive overload happens, even with faculty. The first response to many was to model a variety of different digital technologies. This overwhelmed some faculty members; others couldn't envisage how they could apply them in their classes. Same goes for resources and services shared online. Many resources were put at the disposal of faculty in a 'spray and pray' approach without taking into consideration faculty's growing fatigue as they were constantly filtering the resources they actually needed. Limit choices at first to two or three viable options then gradually increase the options as needs arise that can't be fulfilled by first choices.

Be holistic, not a pigeonhole. Adopt a systemic and a systematic approach to train and support the faculty and provide answers to the wide spectrum of their technological and pedagogical needs. You'll get more buy in.

Establish a platform that allows you to immediately extract the needs of faculty with surveys. In a time of crisis, of uncertainty, and of unstable realities, you need to take the pulse of faculty and students on a regular basis in order to adapt to their evolving needs.

Accept that change is hard, meet the faculty where they are, and celebrate small successes. Many faculty members need some serious support to switch from one mode of teaching and learning to another. You would think a crisis would be a really good opportunity for faculty to reconsider their pedagogical approaches, namely their assessment strategies. Changing practice, even in a time of crisis, is way harder than you think. Set reasonable expectations. Tolerating ineffective pedagogy is false benevolence, however, don't expect the adult learners that are your faculty to be any different than the adult learners that are the students. Acknowledge their small successes. This encourages them to try things that they would never have tried before.

Know thy faculty. What are faculty needs in normal times as opposed to their needs in a time of crisis, a time of transition and a time of major transformation? What is the spectrum of their skill set when it comes to using technology for pedagogical purposes? What kind and level of after care will they require once the alpha or beta version of their courses is implemented? How much time do they have to invest to improve these versions? Can they do it autonomously or do they need a different kind of support? One common answer amongst faculty was they need choices and the choices need to be relevant.

Know thy students. The majority of students turned out to be more resilient than one could have imagined during the pandemic. However, many were anxious, had no access to technology, had no safe space to study, to name only few. When it comes to their readiness to learn online, make sure that faculty never underestimate their skills, but most importantly never overestimate them either. Digital nativeness is a myth and a wide spectrum of student profiles exist. Not all learn by watching a pre-recorded session. Students need connection with faculty - they need faculty to communicate with them.

Personalise and scale up the care and after care. The one-size-fits-all approach was a quick band aid in a time of emergency. It worked to ensure that most courses moved online, but it did not ensure the quality of all courses. A long-term-solution is of an essence given the fact that uncertainty still prevails. Faculty need personalized training and support. They need a system and a platform that allows them easy access to just-in-time relevant resources based on their particular profile. This service should be available regardless of the number of faculty using it at the same time.

Teach them how to fish. The goal is to help faculty members to develop their appetite for adopting innovative pedagogical approaches, recognize their own abilities and capabilities, identify what holds them back, and find strategies to engage in lifelong upskilling when it comes to designing and facilitating their courses. Giving them pre-packaged pedagogical solutions limits their creativity and risks hindering their potential to design the best learning experience for their students.

Help faculty embrace a critical, ethical and equitable use of digital technology. The COVID-19 pandemic forced all faculty teaching a course to use some sort of digital technology to finish the winter semester. This allowed many to reflect on their position in regard to digital technologies and online learning. Today more than ever you can influence the debate concerning positive and negative views of digital technology and encourage faculty to critically and responsibly integrate these technologies and their features to help ensure an equitable, flexible learning experience for their students.

Commentary: How Can Centres for Teaching and Learning Use Learning Analytics to Personalize the Support They Provide to Faculty Members During the COVID Era?

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During the unprecedented COVID era a lot of courses have moved online. With an increasing number of students and teachers working together online, obviously a lot of new and additional data is currently being gathered, stored, and potentially analysed about learners' attitudes, behaviour and cognition. Furthermore, a lot of professional development opportunities have moved online as well, providing another treasure trove to explore what might work in terms of professional learning (e.g., webinars attended, website pages visited, specific learning activities faculty engage with). These data might be useful for institutions, teachers, and Centre for Teaching and Learning (CTL) in particular, but how to make sense of these data?

The field of learning analytics specifically provides a range of conceptual and methodological tools and approaches for CTLs to make use of these data to help to inform practice, and where possible to enhance it. For readers interested in the various options, the open-access Handbook of Learning Analytics is a useful resource (Lang, Siemens, Wise, & Gasevic, 2017).

Many institutions are starting to provide learning analytics dashboards where teachers and sometimes students can see how well learners are doing, how and when they are engaging with specific learning activities, and what potential beneficial next steps might be (Jivet, Scheffel, Specht, & Drachsler, 2018). Furthermore, a wealth of studies has found that learning analytics dashboards could be useful to make real-time or in-time interventions when a student or faculty might need some additional support to successfully move towards the next learning step. Alternatively, learning analytics inventions could be used to provide learners who are ahead of the class some additional challenges and learning opportunities (Sharples et al., 2016).

For example, at the Open University UK predictive learning analytics have been used over the last 4 years by 1159 unique teachers, and reached 23,180 students in 231 undergraduate online courses (Herodotou et al., 2020). An important lesson from this large-scale adoption is the formation of an interdisciplinary project team of faculty representatives, teachers, academics, education managers, information technology and evaluation experts helped to overcome some of the typical early-engagement issues by teachers. Furthermore, by appointing super champions of active teachers to train other teachers helped to overcome some of the initial resistance to using learning analytics. In addition, by mining which teachers made active use of various tools and which did not, this allows teaching and learning centres to pro-actively intervene in terms of learning design, as well as providing specific support for teachers who might struggle to make sense of the learning approach.

Another important finding in the learning analytics community is that not all data is necessarily relevant for teachers and students. While it is attractive to try to grab as much data as possible, in reality often teachers struggle to make sense of data when too much information and minute details of interactions are provided. For example, knowing that a student or faculty member has clicked on four videos, two PowerPoints and one quiz in the last hour is potentially interesting to know. However, it is probably more useful to know how people are engaged with the course over the last two weeks, and how the engagement is linked with his/her learning attitudes, those of his peers, and the respective course schedule (Rienties, Tempelaar, Nguyen, & Littlejohn, 2019).

In particular for course interventions knowing that a learner has clicked on a group of learning activities is often meaningless unless one is able to position this into a deeper understanding of learners' dispositions, and whether these activities are relevant for a particular learning design. For example, follow-up research at the OU has shown that 69% of how and when learners engage with learning activities in a particular week is determined by how teachers design particular learning activities in that week (Nguyen, Rienties, Toetenel, Ferguson, & Whitelock, 2017).

Therefore, when considering looking at the potential treasure trove of rich learning analytics data, start with trying to capture and measure those learning activities that are relevant for achieving the learning outcomes of a course. Furthermore, Centres for Teaching and Learning need to play an essential role in helping faculty to make sense of these complex data, and how effectively design powerful learning opportunities for their learners.

Commentary: 7 Step Initial Course ReDevelopment Process

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The following seven steps are intended to create initial conversions of existing University courses for initial deployments in modes and using media other than classrooms and labs due to the COVID-19 pandemic. The intent should be to use existing materials to as great an extent as possible initially, to enable online learning (versus face-to-face) as quickly as possible.

After initial use continuous improvements may be needed to refine the materials based on the initial deliveries and feedback from both professors and students, and most importantly taking into account assessments of student learning/achievements and gaps, compared to the learning goals and objectives for each course.

These seven steps will require detailing at the task level by each university, and further enabled with guidance from locally created job aids and other tools, reflecting existing and new university policies, procedures and practices.

7 Step Initial Course ReDevelopment Process

Step 1 – Prepare for and Conduct Initial Readiness Assessment Meeting
Step 2– Gather information about the overall goal and learning objectives of the course and any other essential learning activities
Step 3 – Conduct Professor Blended Online Model & Technology Orientations
Step 4 – Begin ReDevelopment Efforts to Produce Alpha Versions
Step 5 – Begin Blended Course Deployments and Conduct Continuous Improvements
Step 6 – Continue ReDevelopment Efforts to Produce Beta Versions
Step 7 – Continue ReDevelopment Efforts to Produce Updated Versions as Necessary

ISDer = Instructional Systems Designer/Developer from the CTL staff

Step 1 – Prepare for and Conduct Initial Readiness Assessment Meeting

- The ISDer will need an assessment tool/guide to quickly plan how to help both willing and resistant professors and assess the professor's personal knowledge/skills and readiness to work with the required and optional tools and systems used locally.

Step 2– Gather information about the overall goal and learning objectives of the course and any other essential learning activities

- The ISDers will need to collect and document specific information to clarify course goals and objectives, and the current state methods and materials and assess the amount of work effort required to convert them into alternative modes (Group-Paced, Self-Paced, and Coached), and into various available media (paper, PDFs, audio files, videos, eLearning, etc.).

Step 3 – Conduct Professor Blended Online Model & Technology Orientations

- Development Plans for assisting each professor in using the development and/or delivery will need to be created, reflecting both the readiness assessments conducted in Step 1, and the choices made in Step 2 regarding blended online models' modes and media.
- The CTLs will need to conduct orientations to various blended online models that are possible locally and training in the selection of an appropriate blend for the professor's courses.
- The CTLs will also need to conduct training in the tools and technology available locally, to support those blended online models' development tools and systems depending on which party (ISDers/professors) is to develop/redevelop existing content
- The CTLs will also need to conduct training in the facilitation and delivery skills required.

Step 4 – Begin ReDevelopment Efforts to Produce Alpha Versions

- Either the ISDer will work with the Professors to redevelop the course materials into the new modes and media adopting or adapting one of the blended online models; or the professors themselves will do so with some assistance from the ISDer as planned and needed.

Step 5 – Begin Blended Course Deployments and Conduct Continuous Improvements

- The professors will deploy them redevelop the course using the new modes and media in their blended online model and will capture their own feedback for planning the continuous improvement efforts needed.

- Student evaluations and assessment of student learning achievements and gaps given the goals and objectives will be conducted and the needs for course methods and materials improvements will be assessed.
- The initial improvement efforts will be planned to reflect the feedback and learning achievements of the students and the feedback from the professors.
- Updates to the methods and materials will be conducted by the professor, or the ISDer, or both, creating Beta versions for use in the next deployment effort.

Step 6 – Continue ReDevelopment Efforts to Produce Beta Versions

- The professors will deploy their Beta versions of their course using the updated modes and media and will again capture their own feedback for planning the continuous improvement efforts needed.
- Student evaluations and assessment of student learning achievements and gaps given the goals and objectives will be conducted and the needs for course methods and materials improvements will be assessed.
- The initial improvement efforts will be planned to reflect the feedback and learning achievements of the students and the feedback from the professors.
- Updates to the methods and materials will be conducted by the professor, or the ISDer, or both, creating Final versions for use in the next deployment effort.

Step 7 – Continue ReDevelopment Efforts to Produce Updated Versions as Necessary

- Step 7 repeats the tasks of Steps 5 and 6 and is to be conducted continuously, or as needed.

A Conversion Readiness Assessment

A Conversion Readiness Assessment will need to address the following about each Professor and each Course to be converted:

- Professor Readiness
    - Stated willingness to convert courses
    - Specific apprehensions/worries about each and all courses
    - Development technology tools (available locally) experience levels & current capabilities
    - Delivery technology tools (available locally) experience levels & current capabilities
- Course Readiness
    - Documented course goals and objectives, quizzes, tests, lesson plans, delivery materials, handouts

Final Notes

This process reflects the need to redevelop courses as quickly as possible and then to refine them in between each delivery, or sooner.

Initial experiences with the early portions of a course may necessitate making improvements for later portions before their initial delivery.

For example, if early student feedback suggests that the methods and materials are not working or are otherwise unacceptable, actions need to be taken prior to the time in between the current and next delivery.

Also, once the pandemic is over and face-to-face deliveries are again possible and safe, thought needs to be given about what should be retained and what should be returned to the original state regarding methods, modes and media based on feedback from both professors and their students.

Commentary: Needs Assessment: Pandemics, and Beyond

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Peter Drucker, speaking of investors, said when the tide goes out, we can see who wore bathing suits. In education, the tide went out. And just about no one was covered up. For too long we have had antiquated learning content as well as unresponsive delivery of valid learning experience. We know more from science and research than what we deliver. And usually, 'needs assessments' were usually 'wants assessments' that looks at what people want rather than at what gaps in results and consequences that should be closed for learners on their journey to become productive and happy citizens. If we keep using the usual wants assessments-regardless of what we call them-it won't make any difference…it would be something like faculty acting like a kid with a grab-bag in a novelty store. Semantic quibbling? I guarantee no. The current pandemic gives us the opportunity to make sure we will not be embarrassed again and help us now.

Here is a simulated dialog:

Administrator: This pandemic has hurt us all and we have to find different ways to help learners. I am doing a needs assessment, and part of that I want you tell me what you need to do the new challenging job
Faculty: Let's see. This has been demanding and stressful. I am going to need a faster computer and need faster internet to upload better. I need an extra 20 or so hours a week to keep my course up to date.
Administrator: That is a full list of needs. How will you know if the investment gets good results? How will you know if what you are providing will help the learners be successful in your course, in their studies, and in later life?
Faculty: From my tests
Administrator: Your test will be useful if they are related to meeting the needs you identified for your learners. how will you know if how you are delivering your course is effective and efficient?
Faculty: I know what I am doing. I have been teaching for 21 years. I will keep on with what I do now.
Administrator: Will the additional time lead you to rethink how you might do some learning system design?
Faculty: What is that? I haven't seen anything like that in the journals
Administrator: There is a lot we now know that has proven effective in new ways of how we teach, what we teach, and why we teach it in the first place. That might help you be increasingly successful.
Faculty: Well, this is all new to me. Maybe. Just maybe…
Administrator: Great. Let's explore together. You can help prepare learners for success and for you adding value after the pandemic has passed.

Here are some things now to deal with the current crisis and then beyond today's crises and defines a better future:

1. Get acceptance that the purpose of education is to contribute to learners becoming self-sufficient and self-reliant in life. The focus is not just subject matter, but helping learners know how to think (not what to think) and be able to apply what they learn to be successful problem-solvers. This shift in focus is central. If you don't get agreement on common purpose to which each person contributes in their own unique way, you will have faculty-centered curriculum and not learner-centered. *Father know best* is not sufficient here.
2. Stop asking people what they 'needed' and ask them what is required—the gaps in skills, knowledges, attitudes, and abilities-- to get the learners successful in school and in life.
3. Have them identify measurable gaps in results for the learners (including for their success in life).
4. For every request, ask them what performance changes it will contribute to learner performance in school and life.
5. Ask each faculty and learner the criteria they will use for measuring success based on #3 above. Compare and resolve differences based on internal and external value-added.
6. Provide each faculty member with a quick guide to preparing themselves and course material for mastery and not coverage.... learning performance design and development.
7. Provide as-required assistance in all aspects of course design, delivery, and evaluation. Guidance could include Boettcher & Conrad (2010); Major, (2015); Smith, (2008); 2008; Wallace, (2001; 2011); Watkin and Corry (2013).
8. Following are some guides for getting what is taught to deal with real needs:

Why We Teach: An Ideal Vision to Guide Us All

The Ideal Vision is a measurable statement of what kind of world we want to create together for tomorrows' child This will be your guide to aligning what you teach to the value it will deliver: *There will be no losses of life, nor elimination or reduction of levels of well-being, survival, self-sufficiency, and quality of life from any source.*

Survival and self-sufficiency? Hasn't the pandemic clearly shown us, regardless of who we are or where we are, that survival is always really close to being lost. Valid education can keep us away from disaster, now and in the future. Research has provided us the new and proven tools to design learning opportunities, and make sure what we are teaching is valid in helping turn out the good citizens for tomorrow. What we deliver in the classroom must contribute to an entire value chain, the includes

societal value-added. For everything you intend to deliver, ask objectively "will this bring us measurably closer to the Ideal Vision?" Needs assessment is a vital tool for making us more successful, in a pandemic and beyond.

What Is Really Involved in Responsive and Responsible Needs Assessment

- A useful needs assessment identifies the gaps between current results and desired/required ones and places the needs in priority order on the basis of "what it costs to meet the need" versus "what it costs to ignore the need." The three levels for needs assessment are societal, organizational, and individual. They are linked and aligned.
- When you define a "need" as a gap between current and desired/required results (used as a noun) it gives you a three-way payoff: (a) it provides the criteria for planning, (b) it provides the criteria for evaluation and continual improvement, and (c) it allows you to justify your plans and budgets on the basis of what it costs to meet the need versus the costs to ignore it. See Figure 1.

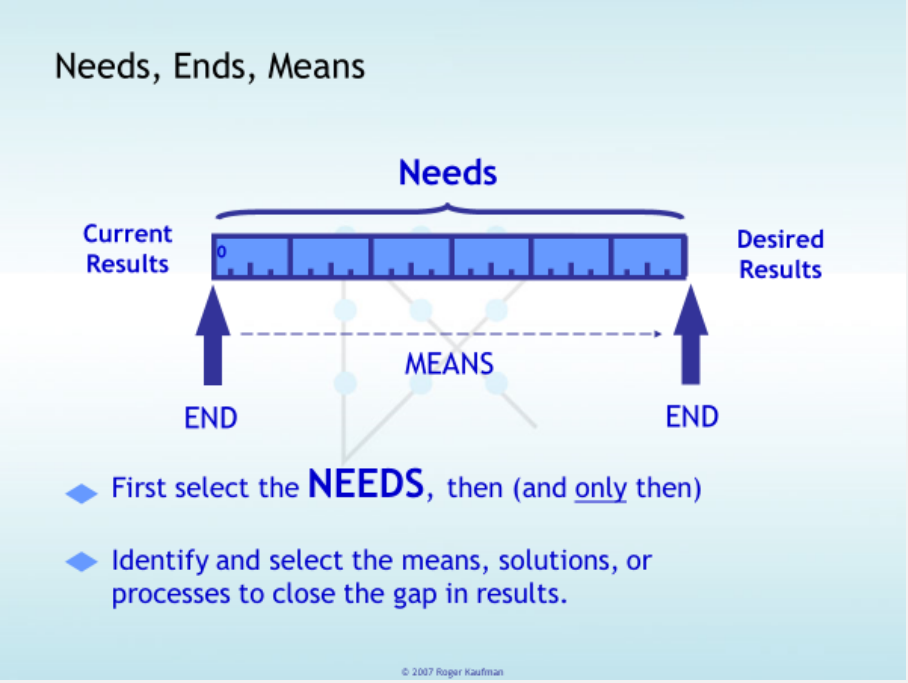

Figure 1. Needs are gaps in results (Kaufman, 2011)

- Needs are not the same as "wants." Don't confuse wants, or solutions, with ends (results, or consequences). Most popular "needs assessments" are really solutions assessments or even "wish lists" of desired methods, means, resources, or activities. Using these can make you pick solutions that don't go with the basic problems and opportunities.

Isn't All This Academic and Difficult? Do We Have Time to Do It?

Think for a moment. What is the cost for meeting measurable needs as compared to the costs for not meeting them? What does it cost us all for education to turn out people who don't know how to make their lives and the lives of others ever closer to the Ideal Vision? If you don't want to go, continuously toward the Ideal Vision, where do you want to go with the accountability for results? Doing needs assessments that only ask "what do you 'need' is a ticket to accomplish what Peter Drucker advised: *We are getting better and better at doing that which should not be done at all.*

Become learner-focused and follow the guidance provided here. This approach has been very widely validated.

Commentary: How to Identify What Is Possible, Secure the Transition, Mobilize a Community of Actors, and Develop Postures of Flexibility and Understanding?

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The context of the pandemic has led to an unprecedented acceleration in the evolution of educational practices. All training institutions have had to make a Copernican turnaround in their organization in a matter of hours or days. Organizations and stakeholders that had established practices, and where faculty and learners were based in a single physical space, have had to break with their usual routine and intensely mobilize digital tools to ensure pedagogical continuity. Faced with such an unprecedented situation, no globally shared point of reference, and in an uncertain context with no pre-existing solutions, the institutional challenge, including for faculty and students, is to shape new practices in a very short period of time with only the known classroom and laboratory teaching practices to draw on. The analysis of the experience of a Canadian university makes it possible to identify several principles that we share in this contribution: identifying what is possible, securing the transition, mobilizing a community of actors, fostering flexibility and understanding.

Identifying What Is Possible

Once the initial shock of the pandemic has passed, the first objective is to identify possible solutions with regard to the rules of the institution and to give clear and explicit answers to all the actors to the two following questions: What should be put in place to maintain the quality of education? and What can be done with regard to the resources and constraints linked to the institutional and societal context? The identification of possibilities leads to the establishment of a list of courses which will be transitioned online in the coming semester. This list is established on the basis of co-constructed and shared criteria with all of the professors (example of a criterion: the activities on campus are reserved for students starting their university education, subject to compliance with the health rules in place). These criteria provide benchmarks shared by the whole community and facilitate discussions, and sometimes even negotiations. They make it possible for objective decision-making and ensure that it is fair.

Securing the Transition: Developing a Climate of Confidence

Once the course is set by the institution, the aim is to reduce the sources of anxiety for faculty, especially for those who do not practice distance education. To do this, it is important to listen to professors without judgement, to collect information from them on how they are coping with the transition as well as their needs to set up appropriate support. In the case analysed, the identified needs of the faculty necessitated three levels of support. it is a matter of making proposals in response to needs whether pedagogical or technological without imposing them on faculty. Securing the transition means ensuring each professor feels confident that he or she will be able to make the

transition with the proposed support. The primary function of this support is to listen to faculty's needs, their concerns, and even their fears and anxieties. It is undertaken without judgement, simply in the search for understanding of the faculty's teaching practice. The person giving the support and the professor together identify the problems encountered and co-construct the solutions.

Mobilizing a Community of Actors.

The scale of such a transition requires engaging the greatest number of faculty in this process. The role of leaders and influencers in each micro-community is essential (e.g. faculty in the same unit). Faculty's commitment seems, on the one hand, facilitated by interacting with similarly situated colleagues with whom they can relate and trust, and on the other hand, by the need to find solutions together to a common concern: pedagogical continuity.

Organizing regular meetings, for example in the form of webinars, sharing resources and materials, and setting up times for exchanges help to create this community, provided that these actions are close to their professional affiliation. Actions of this type set up at faculty levels seem more fertile than those set up at university level. Recognising oneself in a community made up of close colleagues seems to strengthen commitment to this dynamic and also helps to legitimise the actions that are carried out. Moreover, such a community is an opportunity to reveal talents within a faculty through the voluntary sharing of experiences.

Flexibility and Understanding

In the context of this massive transition, with no reference points relating to distance education, it is preferable to return to the known shared principles of pedagogy and the fundamentals of learning and not to simply 'transfer' face-to-face practices to a distance learning context. The question is not so much what to do with a presentation of 200 slides as how to create meaningful teaching and learning activities. As this is a first experience for both faculty and learners, it is necessary to define the main principles of pedagogical design while remaining flexible to respond to possible adjustments in accordance with the experience of the first two weeks of the course. It is important to remain flexible and understanding towards oneself and others without compromising expectations of pedagogical quality.

At this time of crisis, with its unexpected arrival and sudden disruption of daily life, it is important to use this time of transition wisely. Although immediate needs may come to the fore, it is prudent to adopt a mindset that considers more long-term goals and to focus on the reconstruction of a new state of practice. Such a process entails coherence and consistency of objectives and practices coupled with an openness to ongoing adjustments. It is built by moving forward, nothing can be imposed beforehand. Enduring practices are the result of co-construction between teachers, pedagogical advisors and learners, which enables each professor to take the approach he or she is capable of and what seems possible and attainable to him or her.

Commentary: How to Support Faculties in Designing Courses in Fully or Multiple Modalities

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As plans for many institutions call for substantial on-campus course offerings as well as online and hybrid (or blended) programs in Fall 2020, the faculty development challenge becomes even more complex than in "normal" times. Many schools have adopted a range of class types or delivery modes for Fall 2020, including fully in-person, online synchronous, online asynchronous and hybrids of many varieties. But if a school can't afford to offer discrete class sections in each mode, the only way multiple modes can be provided is to do so within individual class sections, creating the need for multi-modal approaches; modes which do exist, but many faculty may not be familiar with them and most have never tried in their teaching. In these multi-modal classes, faculty need to be prepared to 1) teach classroom-based students, 2) teach online students – perhaps synchronously or asynchronously, and 3) manage both types of student participation at the same time, in the same classes. This situation would be difficult in normal times, but with the extremely challenging conditions expected in the classroom in Fall 2020 with physical distancing and mask requirements and the ongoing uncertainty about who can and cannot attend class in person (or teach in person), the faculty preparation and associated development needs have never been greater.

One multimodal approach that received a lot of public attention in the spring and summer of 2020 is the HyFlex (Hybrid-Flexible) course design (Beatty, 2019). In late Spring 2020, EDUCAUSE reported that up to 70% or more of campuses that had made plans for Fall 2020 were planning some form of "HyFlex" instruction. Most of our campuses have no formal faculty development focused on HyFlex (or other multi-modal) instruction, though they often provide excellent support for online and hybrid instruction. So not only did the faculty have to adapt to a new way of teaching, the faculty development staff and leadership also had to learn how to support this new way of teaching as well. Thankfully, the most common HyFlex design guidance used in the past leverages what we know and do well in separate modes to develop methods that support students engaged through all participation modes at the same time. We didn't have to start over completely.

HyFlex design typically starts with proven effective classroom instructional approaches and materials, and then supports faculty in transitioning this excellence online. The basic process of course development is to consider 1) student learning outcomes, 2) instructional objectives and associated content, 3) knowledge assessment and 4) student engagement for all planned modes of instruction. For each aspect, faculty begin with what they have already developed for the classroom, and then consider what changes are needed to support asynchronous online students, and then how those approaches would also support synchronous online students (when needed).

Professional development approaches used this spring and summer used formal workshops (multi-day) and (/or) individual instructional design consultation to walk through the HyFlex course design process. Starting with an analysis of student learning outcomes and instructional objectives, the faculty (or course designer) considers whether or not each outcome and objective can be met in the online participation modes, or if revisions to outcomes may be needed. If all outcomes can't be met through online learning modes, then either a course isn't a good candidate for HyFlex instruction, or some form of hybridization may be needed – some outcomes met through the HyFlex mode and others met through the classroom-only mode. Once outcomes have been aligned, instructional content is considered. If mostly digital materials are already used, then a relatively simple transition to posting those in the LMS may be all that is needed. Next, forms of assessment are considered. If the form of assessment in the classroom also works well for online students, then no changes may be needed. Proctored in-class exams may only need to be loaded into the LMS with an online proctoring solution in place. Some faculty consider ways to change their assessment to forms less susceptible to student cheating, often developing more authentic assessment forms such as written papers, projects and presentations. Lastly, faculty have to plan for engagement with students in all modes, anticipating the new classroom environment (with physical distancing requirements), considering how to interact in synchronous sessions with both classroom and online students (at the same time), and establishing an asynchronous engagement approach that support interaction among students and faculty for those learners completing the course outside of the scheduled class time.

When starting with an effective classroom course design, if faculty are supported in building and implementing an effective asynchronous course to support students who cannot (or in some cases choose not to) attend class in-person, the result can be a rich learning environment flexible enough to support all students no matter their participation mode.

Commentary: Evidence Based (EB) Guide to High Impact Pedagogy for University Online Course Design

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Our research center has worked with many university instructional designers and faculty in a number of nations who are moving courses online. For the past 20 years we have carefully monitored international research focused on the most effective online pedagogy and the challenges administrators, faculty and students experience during the transition process. This commentary provides resources for pedagogically effective strategies that have been found to enhance student learning and motivation in many research studies conducted in different disciplines and cultures. It is based on the assumption that our shared goal is to support the most effective engagement and learning by all students. Where possible we have linked suggestions to articles, chapters, power points or discussions that explain and cite specific studies or reviews that support the advice given. Colleagues who have questions or comments are invited to contact: clark@usc.edu

1. Here is a comprehensive, evidence based (EB) checklist that lists EB criteria for all major elements of design, development, presentation and assessment of online courses. It was developed and revised over the past 9 years and has been used by many universities successfully. It can be used as a simple list of EB pedagogical strategies that can be adopted by designers and faculty or as a formative evaluation checklist during or after the design of all or part of an online course. (Evidence-based online checklist.pdf)
2. Introduction to EB guidelines for online design and a summary of psychological principles related to design that underpin learning by one of the best-known designers (Ruth Colvin Clark) and a famous research psychologist focused on multimedia instruction (Richard Mayer at UC Santa Barbara). (Learning by Doing Clark Mayer.pdf)
3. A power point presentation developed by Richard Mayer to summarize the pedagogical principles for online presentations along with the studies that support them and the reasons why they work. Designers will find suggestions for ways to answer faculty questions about the reasons and evidence for many EB pedagogical suggestions. (Multimedia Principles Mayer.ppt).
4. If you are interested in a complete, EB instructional Design system here is the GEL (Guided Experiential Learning) system described step-by-step and illustrated. This design system describes how to implement many of the elements on the EB Checklist described in in #1 above. It includes instructions for using Cognitive Task Analysis – an unnecessary approach since designers are working with faculty content experts. (Gel Design System Implementation)

5. A simple, one-page model of different types of knowledge and how to both teach (with an example) and evaluate all kinds of knowledge. Describes how to perform some pedagogical strategies not permitted in asynchronous online platforms. (Knowledge Performance Matrix, 2020)
6. A current description of how to diagnose and remedy student motivation problems when learning online with assessment examples. (Motivation Clark Saxberg IEP 2006)
7. In a 2011 survey of 260 faculty in different disciplines teaching online courses, it was determined that those whose students had higher test scores in similar classes, had lower drop-out rates, were more motivated to persist and invest effort in online courses and who gave their instructors the highest ranking - all had only one quality in common – they were all perceived by students as "very empathetic". Students mentioned that these faculty were available by phone (during "office hours") or in chat rooms when they had questions, listened and tried to help with their course problems, were understanding when students encountered emergencies at home that interrupted and delayed their work, were occasionally willing to accept late work in the case of a severe emergency and interacted with students on chat boards. Being available and understanding with students requires time and effort but it pays off in student persistence and learning as well as in student respect and appreciation. (Clark Saxberg Motivating Online Students.doc)
8. US Distance Learning Association document describing best practices in online design and evaluation (developed by the Gates Foundation). (Gates Measuring Quality in Online Learning.pdf)
9. French and English versions of Evaluating Distance Education: Strategies and Cautions. (Evaluating Distance Learning Clark 2008).
10. Questionable practices and principles in multimedia online design. Research evidence that 10 very popular beliefs about online, computer-based learning may be mistaken (Clark Feldon 10 Questionable Online Design Priciples.pdf)

Commentary: Using Digital Technology and Fully Online Readiness Surveys to Develop Skills and Competencies

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As educators all over the world have come to understand while coping with the COVID-19 situation, working within fully online environments is not the same as working within physically co-located or classroom spaces. Consequently, researchers at the EILAB (OntarioTechU) developed the Fully Online Learning Community (FOLC) model. To function within the dimensions of the FOLC model, individuals must develop a large number of skills and competencies, some of which relate to the use of digital technologies and others which relate to working within highly discursive learning contexts. The degree to which these skills and competencies have been developed can be thought of as a measure or index of readiness. Readiness indexes, when used by individuals, should provide indications of areas of relative digitale and other types of competence required to prepare for, function, and thrive in online learning and digital work environments. Simultaneously, the indexes could be used by institutions to determine modifications to program/course curriculum and pedagogy, as well as helping to determine the sorts of professional learning opportunities that might be offered to alumni and staff members. As a result, the tools should support the development of capacity for both individuals and educational institutions to adapt to the context presented through technological change and social innovation.

A wide range of organizations, such as the World Economic Forum and the Conference Board of Canada, have been publishing lists of skills that would be necessary to thrive, not only in online environments, but also in a globalized, rapidly changing world. Being able to think critically and solve problems appears in all of these lists, and when combined with the third set of common skills, those of, flexibility and adaptability, it becomes abundantly clear that there is a great need for individuals who are able to assess a situation, create a problem, and then work collaboratively with others towards a solution or set of solutions. It is surmised that similar types of skills are required, regardless of whether one's career goals are in academia, commerce, service, or entrepreneurship. In this context, researchers in the EILAB developed a set of digital readiness indexes that enable individuals and institutions to plan and prepare for the transformations that are required to meet the demands of the ever-changing employment and learning landscape. For this purpose, two frameworks were needed: 1) a comprehensive understanding of what constitutes "fully online learning" and 2) a clear and operational categorisation of the technological or digital competencies that are involved. With such frameworks, this project is focused on developing tools and methods to help learners and institutions get the most out of fully online learning opportunities.

Fully Online Learning Community Model

In an effort to better understand the specific dynamics involved when formal learning is designed to occur fully online, the Fully Online Learning Community (FOLC) model (Childs, vanOostveen, Flynn, & Clarkson, 2015) was developed. The FOLC model employs a rich mixture of synchronous and asynchronous communication environments to: (a) reduce transactional distance (Moore, 1993), the potential psychological and communication space that may arise as a result of the perceived power and experiential differences between the instructor and the learners, and (b) simultaneously welcome peripheral newcomers into the established learning community (Lave and Wenger, 1991). The FOLC can also be applied in hybrid situations, that is both physically co-located and fully online, and to date has been used as the basis for course design in Additional Qualification courses for teachers in Ontario and for course design in higher education at undergraduate and graduate levels in Ontario and British Columbia. Further information regarding the FOLC can be found at https://eilab.ca/fully-online-learning-community/

General Technology Competency and Use Framework

Adding to this model, many frameworks and theories were consulted to assist in structuring the kinds of skills and competencies that are increasingly required for learners as well as professors in fully online learning contexts. To this effect, the selected General Technology Competency and Use (GTCU) (Desjardins, Lacasse and Belair, 2001; Desjardins, 2005a; Desjardins, 2005b; Desjardins, 2005c; Desjardins, 2005d) framework conceptualizes digital-technology abilities of individuals in terms of four dimensions of activity: Technical (GTCU-T), Social (GTCU-S), Informational (GTCU-I) and Epistemological

(GTCU-E). Further information regarding the GTCU can be found at https://eilab.ca/general-technology-competency-use/

Since both the FOLC and GTCU incorporate the use of both synchronous and asynchronous tools and affordances, it is suggested that the digital readiness indexes have broad applicability in formal education contexts, as well as informal, real-life learning situations, such as those experienced when using community blogs or YouTube videos in order to determine how to best build a backyard greenhouse. As a consequence of its applicability to both formal and informal learning environments, the readiness indexes can be used by students, faculty, and staff in educational institutions, employees within commercial/industrial settings, and even individuals and groups in service organizations.

Figure 1 below, shows that the GTCU's four orders of digital technical competency can be mapped onto the FOLC model. The competencies that are required to function within the regions of the FOLC were identified, and, to determine the specific competencies required, a set of survey tools were created, tested, and validated.

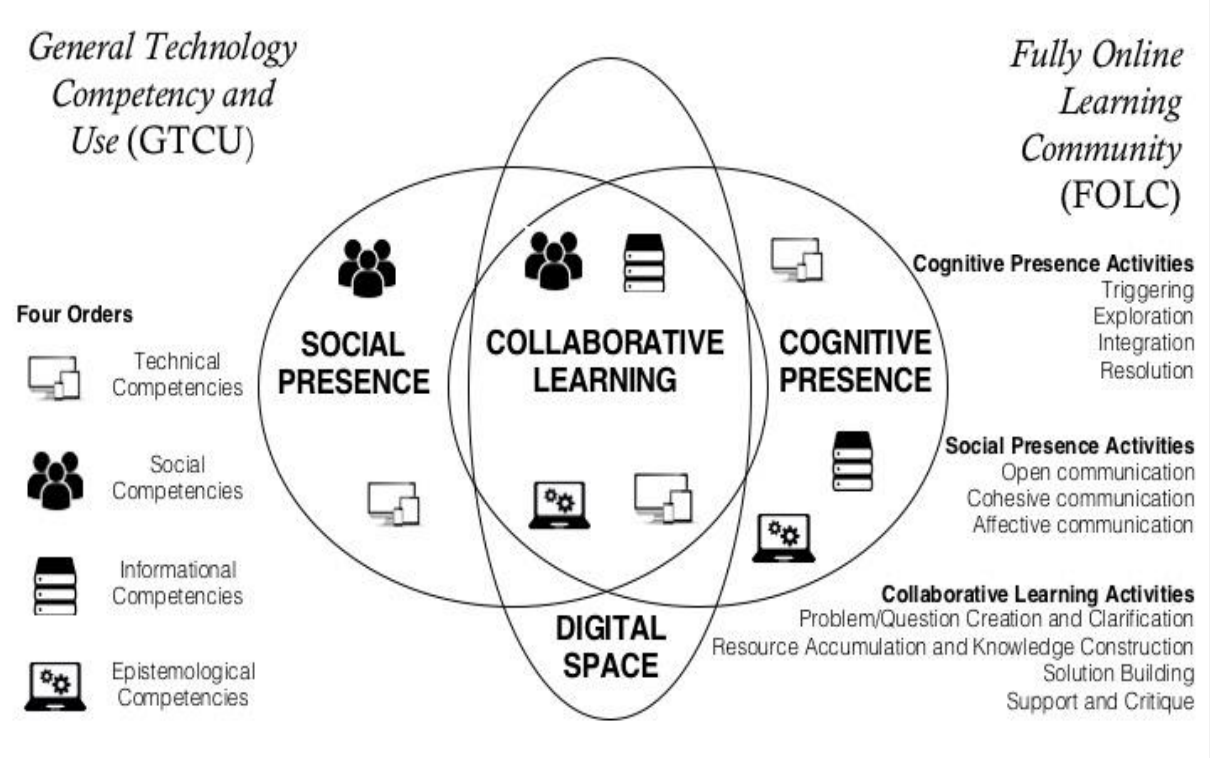

Figure 1: GTCU Competencies Mapped onto FOLC Activities (Barber, vanOostveen & Childs 2019)

Based on the frameworks, two complementary surveys were created. One, the Digital Competency Profiler (DCP), specifically addresses digital technology usage and the competencies that are needed when working with digital technologies in community-based, fully online learning environments. The second, the Fully Online Learning Community Survey (FOLCS), assesses the skills and competencies utilized when working in FOLC-type environments. Both surveys are structured in similar ways in that both consist of 29 items which identify activities within each of the four dimensions in each framework. Both surveys ask participants to respond to the activities by indicating the frequency with which they perform the activity and the comfort (self-efficacy) they feel when performing the activity. Frequency of use and comfort levels use five-point Likert scales. A Competence Index (CI) is calculated for each of the four dimensions. Graphical visualizations of the results or profiles are provided to individuals completing the surveys. The visualizations allow the results to be analysed rapidly. Target profiles can be added to the graphs so that individuals can see how they compare to professionals in specific careers. The Global Readiness Explorer (GREx) dashboard that is used to access the surveys provides ongoing access to the results of each of the surveys so that individuals can track their progress as they develop their fully online skills and competencies. Institutions can set up user groups to use the digital readiness indexes and to collaboratively analyse the results by contacting the EILAB at eilab.uoit@gmail.com.

Commentary: COVID-19 and the Challenges for Teaching and Learning Centres

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Instant Crisis and Long-Term Challenges

Teaching and Learning Centres have been thrust into an unprecedented challenge by COVID-19. They have been required to help all instructors move their teaching into some form of online teaching almost overnight. Garrett et al. (2020) noted that 50% of faculty, 51% of undergraduate students, and 27% of graduate students at U.S. institutions had never taught or experienced a fully online course prior to COVID-19. Johnson et al. (2020a) have estimated that across North America 'between 750,000 and a million faculty were involved in some way in making this emergency transition'.

The consequence has been over-whelming for most Teaching and Learning Centres. The hardest hit were those institutions with no or little prior experience of online learning. Fox et al. (2020) found that faculty in institutions already with online programs prior to COVID-19 transitioned much more easily. Fortunately, in Canada, research by the Canadian Digital Learning Research Association indicates that in 2018, prior to COVID-19, more than three-quarters of Canadian post-secondary institutions already were offering at least some online courses for credit, and roughly 10% of all credit course enrolments were in fully online courses.

Thus, there were two key challenges for Teaching and Learning Centres. Although most knew what to advise instructors, the problem was scaling up instructor support from around 10% of instructors to 100%.

A second problem is that already known best practices (see the Faculty Playbook by O'Keefe et al., 2020) were often impossible to implement in two weeks or less. For instance, a different pedagogical approach is needed when moving online, and instructors needed more than two weeks to make such a pivot.

Hopefully, though, these best practices can be included for online teaching in the fall, provided that such advice and support can be scaled up for all instructors. The danger though is that instructors will have become comfortable with just moving their lectures online via Zoom, and may therefore be even more resistant to changing the design of their courses. This would be a tragedy though as only 19% of students reported being very satisfied with their online course experience, compared with 51% before their course went online (Means et al., 2020).

What Next?

Even if a vaccine is found and made available quickly, the challenges of the need to redesign courses and the need to scale up support for instructors are not going to go away.

The CDLRA and the US IPEDS surveys have found that not only are fully online course enrolments steadily increasing at a rate of about 10 per cent per annum while overall enrolments are flat (Canada) or declining (USA) due to demographics, but also that there was already a move to more blended or hybrid learning, that is, the deliberate mix of face-to-face and online teaching in the same course. COVID-19 will merely accelerate these trends.

Indeed, although I estimate that fully online enrolments are likely to flatten out at around a maximum of 20% of all enrolments, because the market is limited, most other courses will eventually be blended. Students are already going online to look up content, and instructors will increasingly want to set online work for students in conjunction with campus-based activities, especially after their experience of teaching online during the COVID-19 crisis.

The biggest driver though will be the need to change teaching methods from primarily content delivery towards development of high-level intellectual skills such as problem-solving, critical thinking, and knowledge management, to meet the changing demands of a digital age (see my open, online textbook, Teaching in a Digital Age, for more on this).

Meeting the Challenge

There are several potential strategies for Teaching and Learning Centres in the future.

Integration. If they do not do so already, Teaching and Learning Centres will need to contain all the following:

- Specialists in faculty development, covering all modes of delivery (classroom, blended, fully online)
- Educational technologists/instructional designers
- Academic technical support staff (media designers, app developers, possibly LMS management)

with the Director of the Centre reporting directly to the Provost's Office or AVP Teaching and Learning.

Control the size of the Centre. I have noticed some institutions have already looked to boost the size of their departments. One Canadian university I know has suddenly advertised for 10 new instructional designers over the summer.

However, there are two problems in growing too big. First, there is already a shortage of experienced, well qualified instructional designer and academic technical support staff. More importantly, the

Deans will start arguing that they need more instructors, not more support staff, and may well combine to cut back on any positions that are not directly teaching.

A good rule of thumb is about one support person for every 1,000 students, so a university with 25,000 students would have 25 people working in the Teaching and Learning Centre, either centrally or distributed across the academic departments.

Increased efficiency. There has been a very good model for ensuring high quality fully online courses, with an instructional designer often working one-on-one with an instructor to help redesign the course for online learning. That has worked well when only 10% of courses are online, but it is not a scalable model to support all courses. More efficient ways of supporting faculty need to be found such as:

- On demand, online resources that instructors can access exactly when they need it. For instance, UBC has a web site where faculty can go to learn how to create effective educational videos
- Short online, on-demand courses on how to design an online or blended learning course, with a certificate or micro-credential for successful completion
- Use of open educational resources: no need to create such support materials if they already exist and can be shared across institutions
- Media labs, where instructors can go and experiment with new technologies such as virtual reality or AI approaches to teaching

Systematic change. This is the most difficult change but the most essential. The reward system for instructors needs to be changed so that good teaching leads to promotion and tenure. We need to include an introductory course on pedagogy and teaching methods within post-graduate programs so that anyone wanting to teach in a university or college has a minimal qualification in teaching.

And lastly, every institution now needs an updated and effective plan for digital learning, with targets, resources, and a strong implementation and evaluation strategy.

Conclusion

COVID-19 has presented a huge challenge but also an equally significant opportunity for Teaching and Learning Centres. There is now the chance to professionalise and improve the quality of teaching in our institutions. We need to do this if we are to develop the knowledge and skills that our students will need in a digital age and Teaching and Learning Centres will be a critical component of such change.

Practice Empathy with Your Teammates and Faculty

Find your experts within faculties and make the most of their insider perspective. Add to your team faculty who are respected by their colleagues and have the best expertise appropriate to a particular domain of knowledge or a particular department or faculty and rely on them to become your subject matter experts in all things related to their faculty. Ask them to help you understand their colleagues so you can empathize with their concerns. Respected faculty have direct and frequent access to their colleagues. They can help you address your blind spots.

Listen to faculty members. Taking the time to listen empathically to faculty not only helps you validate your plan to support them, it also completely changes the rapport between your team and them. For trust to be built, listen to their concerns, focus on understanding what they are trying to share with you, not on your interpretation of their needs, and propose solutions accordingly. Try to get as close as possible to the faculty's reality. Crisis causes some people to revert into a very deep conservatism and a few become easily irritated or angry. Making a paradigm shift becomes harder because everything else is uncertain and frightening. Despite their worry of failing, many faculty members got out of their comfort zone and are investing every possible effort to successfully complete the transition of their courses online. Acknowledging their efforts can reinforce their determination. Listen actively and nonjudgmentally to their view of their situation, needs and concerns. Paraphrase back to them what you heard "So what you are thinking/feeling is …" and ask, "have I understood correctly?". If they say yes, tell them many faculty feel the same way and ask how you can help.

Create and nurture a safe space for faculty and inter-faculty exchanges. Faculty need to talk and share and the best people for them to listen to when they face challenges are not necessarily outside experts but other faculty members. Communities of faculty emerged because of the crisis. They collaborated, shared ideas, and helped each other. Many started exchanging inter-faculties. Sustaining these communities requires a safe space and network of engaged and committed collaborators. Find your leaders. They may be very quietly doing their own thing. Give them an opportunity to talk to their colleagues. Your homework is to find those people and then help them lead and facilitate the exchange. Professional learning communities, especially within disciplines, can split up the work, test it, and they have each other for constructive informed feedback. But remember, this is also a two-edged sword. Some faculty will also reject solid advice and strategies and try to convince other faculty not to adopt helpful approaches. It is important to support faculty who help faculty colleagues adopt helpful approaches but not prevent (and not support) faculty who try to talk colleagues out of working with you.

Remind faculty to be empathetic and patient with students and to acknowledge their efforts. A large international survey identified the most effective online faculty in terms of student learning and persisting in school and demonstrated that their students in many fields succeeded primarily because online faculty were unusually empathetic with their students. They made themselves as available as possible to handle questions, sympathized with students who had encountered difficult home situations and tried to accommodate their needs with exceptions and special consideration when they were sick or had other difficulties. Most students are facing unfamiliar challenges when it comes to learning experiences and

they worry they might fail. Some are experiencing extreme difficulties in their families. Help faculty find ways to actively engage with students, to reach out and to connect with them empathetically on an individual level. Students are asked to perform while many aspects of their world are changing. Faculty who are patient, trusting and understanding with them and appreciating their commitment to learn will help them achieve more and think twice before they give up and drop out.

Save some empathy for your team members.

Listen to students. Pause and ask students about their needs, their expectations, how things are going with them, because they know best about their own situation. Include their voices, ask for their formative feedback on the learning experiences you help faculty create. After all, your goal is their success.

Communicate, communicate, communicate. Multiple communication is the way to go. Communicate with faculty, communicate with students, be honest and clear about what you know, what you do not know, how you're doing, and what you're doing. Don't keep them in the dark. However, filter the information and validate every piece of it before you communicate it. Don't rush into sharing before verifying the accuracy of the message and addressing its potential interpretations by the different groups of receivers. Adopt one source of communication and communicate regularly. Be flexible and adjust your communication style and strategies to fit the expectations of each group.

Reassure even when you don't have the answer. You might ask, what is the point? Well faculty need to know that the thing that is bothering them is now bothering you and that it is now on your list so they can stop worrying about it. Many faculty members are really struggling to deal with uncertainty. They need certainty. Being honest with them and reassuring them that you will strive to find an answer will help them sleep at night.

Cultivate human relationships. Warm up to people. The only way you can get things done is through our influence and through your relationships. Promote and cultivate opportunities for social connections within departments. If we want the faculty to believe and to trust that we are giving them what they need for their students to be successful, it has to start with that relationship.

Find strategies to maintain faculty momentum beyond the crisis. You are certainly touching faculty who don't normally participate in your workshops or even contact you for advice. Make sure to strategize, as of now, for how to keep those faculty engaged in a post-pandemic era.

Commentary: Towards a Humanistic Approach in Education: Lessons Learned from Notre Dame University- Louaize during COVID-19

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The unprecedented tumultuous events that wreaked havoc in Lebanon in the wake of the uprising on October 17, 2019, followed by the unforeseen outbreak of COVID-19, have brought the educational sector to a complete halt. In order to reconnect students with the curriculum during closures, educational institutions quickly transitioned their delivery mode from face-to-face instruction to emergency remote teaching. This transition largely and overwhelmingly challenged educational institutions given the urgency to train teachers and students to use efficiently available digital technologies for teaching and learning in a limited time-window. In addition, institutions were promoted to undertake quick academic decisions to abridge the curriculum in order to ensure a timely completion of the academic year. All these unforeseeable challenges caused by the pandemic exerted immense pressures on institutions, students, and teachers, let alone the economic meltdown in Lebanon that can be described as the straw that broke the camel's back. As a result, students and teachers have experienced immense fears and concerns about their future, let alone their worries about their well-being.

Cognizant of the numerous challenges brought unexpectedly by the pandemic in a conflict-torn country overwhelmed by an unprecedented economic crisis, Notre Dame University-Louaize (NDU) adopted a mission-responsive approach to deal with the crisis. The University President led institutional efforts to ensure the continuation of the academic year through delegating the Office of Information Technology (OIT) to provide a series of online training sessions to faculty and students in order to skill them for the transition to teaching online. The OIT has also offered online training to staff members to help them carry out their administrative duties during closure.

In tandem, NDU has paid specific attention to providing a humanistic approach in education amidst the pandemic as a manifestation of its mission as a Catholic institution of higher education that pronounces human solidarity, moral integrity, and respect of human dignity. The philosophy of "humanizing humans" adopted by NDU seeks to empower students to achieve self-actualization and self-realization being essential pillars for their optimal learning and moral development. Thus, humanizing teaching and learning during the pandemic has been adopted by NDU as powerful means for alleviating numerous burdens on students and teachers caused by the pandemic and its sequel.

During the online training workshops and throughout the spring semester 2019-20, the OIT team had accompanied remotely all full-time and part-time faculty members to coach their teaching and provide instant technical support and online simulations as needed during or outside teaching hours.

In parallel, online teaching guides were prepared by the OIT as supplemental material to the online training. In tandem, technical support was continuously provided remotely either via telephone or AnyDesk, a remote desktop application for remote IT assistance. Faculty and students were embraced by the IT team's positive and constructive approach as documented in the

assessment online surveys specifically developed for gauging the attitudes of students and faculty members towards their experience in the online journey, including aspects of institutional support.

The humanizing process of emergency remote teaching was manifested in the President's circulars addressed to faculty, students, and staff members to boost their morale and incentivize them, while ensuring through a continuous assessment scheme that all faculty are abiding by institutional guidelines to cater for students' cognitive and non-cognitive needs during the pandemic. The Students Affairs Office (SAO) has followed on individual cases, listened to students' concerns and worries and referred cases needing support to the appropriate constituencies at the University.

NDU has mustered efforts to ensure the humanization of teaching and learning during the pandemic in order to allay the impact of the crisis on the community, while optimizing the performance of the institution at large.

The COVID-19 pandemic has promoted thinking about the dire need for adopting a humanizing educational approach that focuses on human dignity, empowerment and self-actualization. At the nexus of the inevitable change brought in by the pandemic that is going to stay with us in the near future, institutions of higher education are called upon to emancipate education from the influence of Anthropocene and neo-liberalism to a more human-centered approach. The experience of NDU in humanizing teaching and learning processes during the pandemic represents a starting premise for a wider engagement in envisaging plans for levering the human aspect of education that has been neglected in higher education in recent years.

Commentary: The Importance and Complexity of Communication in Crisis Management

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A crisis is an event that occurs suddenly, accompanied by a strong emotional charge causing the destabilisation and disorientation of an organisation (Portail de l'EI, n.d.). The crisis encountered in the spring of 2020 was felt worldwide, and higher education institutions did not escape it. The total loss of bearings affected all levels of the organisation, and the university was found to be out of balance: all of the frameworks had to be reviewed and reinvented.

The management of this crisis required a phenomenal number of decisions and adjustments, involving all units at all levels of the hierarchy (rectorate, registrar's office, human resources, student services, buildings, security, housekeeping, IT services, teaching and learning services, faculties, departments, etc.). In regard to teaching, instructors also had to make major adjustments to adapt to the reality of the pandemic.

The university is a complex system involving a variety of interacting elements and subsystems. In a time of crisis, this interconnection contributes to the complexity of management and communications. It must be said that the crisis triggers adaptation processes at all levels of the system, but which are often guided by the pursuit of local interests and not by an intention shared by all agents. Each sub-system is then tempted to behave according to local norms and not according to a coordinated overall plan (Thiétart, 2000).

In this adaptive context, the communication challenges within the universities were great. Especially since it was a question of communicating in an unstable and changing environment, requiring ongoing decisions. In the heat of the moment, questions were coming from everywhere and going in every direction. Out of an instinct for survival, individuals had a hard time handling uncertainty, and were looking for straightforward answers to adjust and adapt. But the evolving nature of the crisis meant that what was true the day before was no longer necessarily true the next day, heralding just as much uncertainty for the days to come, generating worry and anxiety in many people, accentuated by a sense of urgency and often accompanied by a heavy emotional burden.

In order to allay concerns, there was a great temptation for the various actors and unit managements to communicate quickly on issues that came under their jurisdiction. In our institution, over a period of time, multiple messages circulated, using different channels (e-mails, press releases, FAQs on the various institutional sites, virtual meetings, student portal, Facebook account, etc.). Each unit had its communication strategy, its channel, its recipients. Information was sometimes "pushed", sometimes simply posted on websites. Given the urgency of the situation, the coordination of communications was not optimal. The rapidly changing situation did not make things any easier: the decisions taken on an ongoing basis by the Public Health Branch had cascading consequences for the university and

its various units. Despite the good intentions behind all these communication efforts, they sometimes left an impression of cacophony to the actors and inevitably, certain contradictions appeared between different messages.

The teaching and learning centres were also directly involved and did not escape this desire to communicate in order to contribute to the resolution of the crisis. Seeing the difficulties and frustrations associated with a lack of coordinated communications, the management of the Faculty of Education at Université de Sherbrooke worked with the management of the Pôle d'innovation technopédagogique to coordinate actions and communications. The Pôle is an entity created within the faculty to support the integration of digital technology in training practices.

We describe below the mechanisms put in place within the faculty in preparation for the Fall 2020 term, which, according to the testimonies received, have been extremely effective and appreciated by the actors in place.

These mechanisms have been established taking into consideration the stakeholders and certain characteristics of the situation:

- There are more than 40 programs in the Faculty of Education[1], most of which are managed by departments. Each program has its own specificities, which may require particular adaptations in the context of the pandemic.
- Within the faculty structure, the professors responsible for the programs and their academic management teams (professional and clerical) are key players in the organization of the fall term. They play a coordinating role, but also provide pedagogical leadership to the teaching teams (professors and lecturers).
- With its technopedagogical advisors, the Pôle is a key player within the faculty. Reporting to the office of the Vice-Dean, it supports programs and teachers in the integration of digital technology.
- The Service informatique facultaire (SIF) is also a key player in the context, given its role in the acquisition, installation, commissioning of technological equipment and technical support to users. Its collaboration with the team at the Pôle is essential.
- Voluntary guidelines were requested by program managers to clarify the framework within which they had to make decisions specific to their programs. These guidelines had to take into account sociosanitary measures, but also include pedagogical and technopedagogical guidelines to guide pedagogical choices, as well as technology-related acquisitions and facilities.
- Ideally, once established, the guidelines should not change in order to avoid painful last-minute rearrangements.

1 Including short programs, DESS, degree programs (undergraduate, graduate and postgraduate); initial, continuing and research training; face-to-face, distance or hybrid training, offered on the Sherbrooke, Longueuil or delocalized campuses.

- In addition to its role of supporting programs and teachers, the Pôle plays an advisory role to the office of the Vice-Dean, particularly in establishing guidelines in the context of distance or blended education.
- Department heads and the faculty management committee were also closely involved in the management of the crisis, given their respective functions.

From the outset of the crisis, mechanisms were established to enable two-way communication between the faculty management and the main stakeholders. To this end, virtual meetings were quickly organized (and periodically in the weeks that followed) in order to gather as much information as possible on the particularities of the programs, the issues, the anticipated difficulties, the concerns, etc.

This sharing allowed everyone to broaden their awareness and understand the scope and diversity of the issues to be considered in establishing faculty guidelines. It also highlighted the information needs of the programs to organize the term: capacity of the premises in a COVID context, availability of technological equipment, supplementary budget for auxiliaries, possibilities of purchasing licences, technopedagogical support, disinfection time between groups and other measures likely to constrain pedagogical choices. This information gathering enabled the team at the Pôle to begin to plan its support strategies, knowing the needs, and the faculty management to make the necessary representations to the institutional management to obtain budgets for this support.

The Pôle's opinion was also sought by the office of the Vice-Dean on pedagogical issues. (Should programs be encouraged to use HyFlex teaching or not? What were the advantages and disadvantages? Were there any restrictions to be placed on the learning assessment in a context where face-to-face evaluation is no longer mandatory? Was there pedagogical advice to be given on the use of synchronous and asynchronous delivery types? Etc.)

Drawing on its experience and expertise, the Pôle offered enlightened and well-argued advice on these questions, in addition to providing various complementary reflections on a range of considerations, thus contributing to the enrichment of the guidelines adopted by the faculty director and transmitted to the program teams (not without first having been validated by the latter).

Of course, throughout the weeks that followed, the situation continued to evolve. Support budgets were specified, alternative premises were found by the university, choices were made in terms of technological equipment, and methods of technopedagogical support became clearer. In order to keep the communication channel open and to ensure that everyone receives accurate and timely information, a generic address was created as well as a shared space in the *Sharepoint* environment to which a group of all previously identified stakeholders had access. The generic address made it possible to channel questions and comments about the situation and redirect them to the person best placed to answer them, all the while keeping track of all exchanges.

The shared space was used to gather all official information concerning the organisation of programs from the faculty management or an institutional unit. As soon as new information became available, the group was notified by e-mail and the information was posted in the shared space. When the Pôle was ready to share its support mechanisms for teachers, this channel was used.

Except for the rare cases where information concerned the entire community, communication with teachers and students was relayed by the program managers and their teams. This allowed each person to frame the optional communications, to nuance them, to add elements specific to their program, thus avoiding the multiplication of messages. This cascading of communication allowed program leaders to fully assume their instructional leadership at their organizational level.

In conclusion

While this is only a snapshot of the communication mechanisms developed at the Faculty, this brief portrait highlights the values and convictions to which the crisis management strategies, and consequently, the communication strategies, were anchored:

- Recognition of the systemic nature of our faculty environment, which requires coordination efforts and the use of all available expertise.
- Recognition that each individual, regardless of his or her level in the hierarchy, has information and an understanding of the situation that must be solicited both for the analysis of the situation and for the search of solutions.
- The circulation of information empowers the actors.

Communication is part of a value system. In a time of crisis, these values help structure management and communication methods. The University is not first and foremost a private company where power is exercised from the top down, without compromise. It is a distinct organization where power is exercised within collegial structures, hierarchical, of course, but which give a large place to exchanges and debates, favouring rich solutions that are marked by the wisdom and expertise of all those who contribute to them

Commentary: How to Enable Faculty Members as Designers of Equitable, Inclusive and Culturally Responsive Learning Experiences for Their Students

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Equity in higher education means that all students are able to achieve equal learning outcomes as they are supported by institutions, faculty, and other systems to engage in the learning process. All students are able to receive the financial, social, and academic support and guidance they need to succeed in the institutional programs, thus enabling lifelong success as well. All students are given access to appropriate and effective learning opportunities - instructional resources, activities, interactions and evaluative assessment - which are differentiated according to their unique sets of characteristics and needs.

Equitable learning means that all students have the opportunity to achieve the same learning outcomes with an approximately similar set of resources and effort required. Equitable learning doesn't happen by chance except, perhaps, with extremely homogeneous student populations that rarely exist in our institutions. Equitable learning environments must be intentionally designed and implemented carefully, supported by institutional resources to support learning by all students. In order to design and implement equitable learning environments, faculty have to understand the needs of various students and how they differ according to relevant characteristics. What do first generation learners need that others may not? What do online asynchronous learners need that others may not? What do classroom students need that others may not? What do non-native language speakers need that others do not? This list of questions could grow quite long.

In order for us to create equitable learning experiences, we have to ensure that we are including all students in the learning environment and not ignoring or excluding students "by design" when we don't consider the differences among students coming to us for an educational experience. Sometimes these differences are obvious and often students with these differences are supported by institutions with targeted resources and opportunities. In other situations, differences among students may not be readily observed (or even be definable) and therefore are unsupported by common "one size fits all" instructional designs. Many of these differences can be supported by the use of a range of content, engagement and assessment approaches which implement Universal Design for Learning (UDL) principles. Still other situations require other forms of flexibility to allow us to include all students in the learning environment. When students have many other responsibilities outside of the class, such as work and family care obligations, long or impractical commutes to campus, or find themselves restricted from the classroom due to illness or other public health concerns, participating in single mode instruction may not be possible even if the student has time available for engaging in learning activities. In these situations, flexible forms of instruction, such as

HyFlex or other multi-mode approaches can support the inclusion of these students into the learning community in meaningful ways.

It's not enough just to be included in ways that allow participation and support learning and physical differences. We also need learning environments that support the sociocultural differences that students (and faculty) bring to the community using culturally responsive pedagogy. Culturally responsive learning experiences come from a pedagogical approach that recognizes the importance of including students' cultural references in all aspects of learning. For example, culturally responsive teaching not only includes many common "mainstream" works in a discipline, but also includes materials (and activities), such as literature from other cultures in other parts of the world (or metropolitan area) and written by diverse authors. Engaging students in discussions that draw out their personal experiences through storytelling (even in brief discussions) can express value in a student's own culture. When the lessons learned in the curriculum are directly connected to the students' social communities, they are much more contextual and relevant to learners, and are naturally more engaging for students, motivating participation. When faculty explicitly value the experiences of all of their students and design their courses to activate their students' cultural capital, they are better able to build relationships with their students; all students are seen and heard, respected and valued for who they are. Relationships built in this way are very effective in creating the kinds of learning communities we desire, inclusive and equitable for all participants.

Conquer the Assessment Beast

Conquer the assessment beast with practical solutions. Online proctoring failed many, so did high-stakes exams. Think about how you can realistically support faculty in transitioning to very different models of assessment, not only conceptually, but also looking at what kinds of support they will need and software to help them with grading. Avoid providing easily available "multiple choice" or "recall" software when learning goals call for problem solving or learning to apply complex procedures. Look for creative assessment solutions and technology. When you find something helpful, let other designers, centres and faculty know about their availability.

It Is Time for You to Lead, "Just Do It"!

Shoot for the stars but acknowledge the limitations. It's hard to overcome and to stabilize people and to get them to innovate and to try and do something different in the context of a pandemic. You need to set your expectations. As long as you can move the needle a bit, you should be feeling really quite good about that. The pandemic proved that faculty can use digital technologies, with exceptional sophistication in some cases, but it also signaled and exposed weaknesses in both the approaches used to train faculty and in some of the tool sets. This is a great opportunity to address these limitations.

Stay ahead, get ready, and be proactive. Institutions that anticipated needs and made the choice to source certain equipment or to expand their teams earlier were much more successful in the speediness and effectiveness of their response. You must stay ahead of the game to see where you need to be. Develop your team's sense of readiness. Do risk assessments, think of the contingencies for each of the scenarios. Don't wait for things to happen to react. Be proactive. Look further ahead than just the winter of 2021. This will help you make better decisions that are not just going to be essential for now but will better position your organization going forward. The further ahead you can think, the better place you'll be.

Have a voice. Sometimes you just have to be brave about the things that you believe are right.

Take risks, you have the right to make mistakes. The educational institutions are transitioning. There is no one correct answer. You are going to make mistakes and you will backtrack. Tolerate it. You will learn that the world will not end because of this. You may look back and think that a decision you took wasn't the right decision. But in that moment, and at that time, with the parameters you had to operate, you could only do your best. Continue to do the best you can. You have an opportunity for a real deep change. Leverage that, take advantage of that. And install this culture within your team and the faculty you work with. Let them start with an alpha version. Test it. Then move to a beta version. Accept that good enough is the new perfect in a time of transformation. Learn from the mistakes and proceed accordingly.

Many valuable wheels are out there, stop reinventing new ones. Educational institutions worldwide have been working relentlessly on creating worthwhile online resources for their faculty and students to help them succeed in the transition to online learning. Direct your community to these already available resources and use efficiently your team's time to focus on more complex challenges. By freeing their time

from recreating common resources you are allowing them to provide more focused and personalized support to faculty. This will be the token of your uniqueness.

Break the silos. Programs work in silos, department work in silos, faculties work in silos, and educational institutions work in silos. It is time to break these silos and share and learn from each other. This goes beyond the notions of multidisciplinarity, interdisciplinarity and transdisciplinarity. It involves multi-, inter-, and trans- educational institutions, It involves putting in common the approaches, the strategies and the tools you develop for the service of all, shared within the global community.

Give value to teaching. While this goes beyond your pay grade, promote the idea that teaching should be similarly valued as research in an educational institution. Because of the expectations from the educational institutions, most faculty focus more on their research, often to the detriment of their teaching. Unless faculty have a degree in education, almost none have gone through advanced training on how to teach - so their pedagogical decisions behind the design of their pedagogical choices are often ill-informed.

Be ready to navigate the politics. In a time of crisis, you are able to make decisions quickly. And in general, you get very quick support for them. But as you come out of a crisis, politics come into play. You need to be able to navigate those and anticipate them going forward. Stay aware of the dynamic changes as your organization comes out of the crisis. This will allow you to navigate them a little bit better, especially when you start losing momentum and energy.

Commentary: Examining Performance from a Systemic View for COVID-19 and Post-COVID-19 Eras

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To lead, a Centre for Teaching and Learning (CTLs) should first know thyself.

Let's posit that a CTL is a system that is complex in nature, open, and influenced by driving forces in their environment. This system is composed of interrelated elements and subsystems that are in continuous interaction and share collective purposes and outputs.

In order to identify the forces that are influencing its performance, each CTL can conduct an auto-performance diagnosis from a systems perspective focusing on its *viability in times of crisis*, namely its performance during the transition of courses to hybrid, flexible or 100% distance modalities during the COVID-19 pandemic, but also on its readiness for a post-pandemic, digital and artificial intelligence transformation era.

For this purpose, CTLs can make a new application of Swanson's (2007) performance diagnosis matrix (PDM), which was originally used in human resource development to identify areas where performance can be improved.

The Performance Variables and Levels of Performance Addressed in Swanson (2007)'S Performance Diagnostic Matrix (PDM)

Swanson (2007) defines *performance* as "a valued productive output of a system" (p. 27). If we juxtapose this definition to the transition and transformation of courses online, then *equitable and quality education as well as effective and efficient evaluation of student learning in hybrid, flexible or 100% distance modalities* become the valued productive outputs of the CTLs system, while keeping in mind that the ultimate output is students' success.

A matrix that looks at performance variables in a systems approach at different levels might generate questions that a CTL wouldn't otherwise think of.

Swanson's Performance Diagnostic Matrix (PDM) of questions allows human resource development and performance improvement professionals "to conduct a performance diagnosis towards the goal of improving organization performance" (Swanson 1994, p. 89). In Ruona and Lyford-Nojima 's (1997) perspective, there are two purposes to a performance diagnosis. First, it helps identify the gap between actual and desired performances. Second, it helps design interventions that will improve organization performance.

According to Swanson (2007), performance issues can exist in one or more of five performance variables:

1. Mission/goals— the central purpose to which efforts are directed
2. System design— the plan that facilitates the interaction between the system's interrelated elements
3. Capacity— the possession of means, or tools needed to perform
4. Motivation— the determination to reach the performance goal
5. Expertise— the possession of specialized skills or required knowledge to perform.

These variables are addressed at four levels. The list that follows juxtaposes Swanson's original levels to renamed levels for the purpose of the adaptation of the matrix:

A. Organizational level modified to *Centres for Teaching and Learning level*
B. Process level, modified to *Pedagogical Transformation of Courses to Hybrid, Flexible or 100% Online Modalities process level*
C. Team level *(instructional designers, multimedia developers, web designers, …)*
D. Individual level (*instructional designer, multimedia developer, web designer, …)*

Adapting Swanson (2007)'s PDM to the CTL's current context allows CTLs to develop questions to address when examining the five performance variables at the four levels.

Questions That Emerge at The Intersections of The Performance Variables and The Four Levels

Performance Variables (1-5) /Performance Levels (A-D)	A- Centres for Teaching and Learning Level	B- Pedagogical transformation of courses to hybrid, flexible or 100% online modalities Process Level	C- Team Level	D- Individual Staff Member (Instructional Designer, Web Designer, Multimedia Media Expert and Programmer, …) Level
1- Mission/Goal	Does the mission/goal of the CTL fit the reality of teaching and learning in the COVID-19 and post-COVID-19 eras?	Do the process goals enable the CTL to meet its missions/goals?	Do the team's goals provide congruence with the process and individual goals?	Are the professional and personal mission/goals of the individual staff member congruent with the CTL's?

2- System Design	Does the CTL provide structure and policies supporting the pedagogical transformation of courses to hybrid, flexible or 100% online modalities?	Are processes designed in such a way to work as a system?	Does the team dynamic function in such a way to facilitate the support to the pedagogical transformation of courses to hybrid, flexible or 100% online modalities?	Do individual staff members clear obstacles that impede them from supporting the pedagogical transformation of courses to hybrid, flexible or 100% online modalities?
3- Capacity	Does the CTL have the leadership, capital, and infrastructure to achieve its mission/goals?	Does the process have the capacity to perform (quantity, quality and timeliness)?	Does the team have the combined capacity to effectively and efficiently meet the pedagogical transformation of courses to hybrid, flexible or 100% online modalities goals?	Do individual staff members have the mental, physical, and emotional capacity to support the pedagogical transformation of courses to hybrid, flexible or 100% online modalities?
4- Motivation	Do the policies, culture, and reward systems set by the CTL support the pedagogical transformation of courses to hybrid, flexible or 100% online modalities?	Does the process provide information and human factors required to maintain it?	Does the team function in a respectful and supportive manner to support the pedagogical transformation of courses to hybrid, flexible or 100% online modalities?	Do individual staff members want to support the pedagogical transformation of courses to hybrid, flexible or 100% online modalities?

5- Expertise	Does the CTL establish and maintain selection and training policies and resources?	Does the process of developing expertise meet the changing demands of changing processes?	Does the team have the expertise to support the pedagogical transformation of courses to hybrid, flexible or 100% online modalities?	Do individual staff members have the knowledge and expertise to support the pedagogical transformation of courses to hybrid, flexible or 100% online modalities?

Each of these intersections suggests questions that require an extensive investigation in order to provide a full analysis of what has been done and what remains to be done in order to pose a systemwide evaluation of the performance of the CTL. These questions can be used to determine priority areas where bottlenecks exist.

In addition to evaluating its own performance, a CTL can adapt the matrix to examine faculties as systems. In collaboration with each faculty, the CTL can investigate the questions that emerge from the matrix and then propose interventions or solutions based on the issues that unfold. In that case, the levels are modified as follows:

A. Organizational level modified to the *Faculty level*
B. Process level, modified to *Pedagogical Transformation of Courses to Hybrid, Flexible or 100% Online Modalities process level*
C. Team level which is modified to *Departmental/Program level*
D. Individual level (*faculty members)*

Performance Variables (1-5) /Performance Levels (A-D)	A- Faculty Level	B- Pedagogical Transformation of Courses to Hybrid, Flexible or 100% Online Modalities Process Level	C- Departmental/ Program Level	D- Faculty Member Level

1- Mission/Goal	Does the mission/goal of the faculty fit the reality of teaching and learning in the COVID-19 and post-COVID-19 eras?	Do the process goals enable the faculty to meet its missions/goals?	Do the department/ program's goals provide congruence with the process and individual goals?	Are the professional and personal mission/goals of the faculty members congruent with the faculty's?
2- System Design	Does the faculty provide structure and policies supporting the pedagogical transformation of courses to hybrid, flexible or 100% online modalities?	Are processes designed in such a way to work as a system?	Do the department/ program's dynamics function in such a way to facilitate the pedagogical transformation of courses to hybrid, flexible or 100% online modalities?	Do faculty members clear obstacles that impede the pedagogical transformation of their courses to hybrid, flexible or 100% online modalities?
3- Capacity	Does the faculty have the leadership, capital, and infrastructure to achieve its mission/goals?	Does the process have the capacity to perform (quantity, quality and timeliness)?	Does the department/ program have the combined capacity to effectively and efficiently meet the pedagogical transformation of courses' goals?	Do faculty members have the mental, physical, and emotional capacity to transform their courses to hybrid, flexible or 100% online modalities?

4- Motivation	Do the policies, culture, and reward systems set by the faculty support the pedagogical transformation of courses to hybrid, flexible or 100% online modalities?	Does the process provide information and human factors required to maintain it?	Does the department/ program function in a respectful and supportive manner to support the pedagogical transformation of courses to hybrid, flexible or 100% online modalities?	Do faculty members want to transform their courses to hybrid, flexible or 100% online modalities?
5- Expertise	Does the faculty establish and maintain selection and training policies and resources?	Does the process of developing expertise meet the changing demands of changing processes?	Does the department/ program have the expertise to support the pedagogical transformation of courses to hybrid, flexible or 100% online modalities?	Do faculty members have the knowledge and expertise to transform their courses to hybrid, flexible or 100% online modalities?

The answers to these questions must be informed by interviews with key stakeholders, meetings and documentation. Questions that are answered in a satisfactory manner suggest that these are not priority areas. Question that are answered with problematic areas suggest possible areas of trouble or bottlenecks that must be addressed in order of priority within a reasonable timeframe.

Commentary: So That an Innovation Generates a Sustainable Transformation: Point of View of The Pôle D'innovation Technopédagogique De La Faculté D'éducation De l'Université De Sherbrooke

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The Pôle d'innovation technopédagogique de la Faculté d'éducation de l'Université de Sherbrooke was set up in 2016. Its primary purpose is to contribute to improving the quality of teaching through the integration of digital technology. To this end, it aims, through various actions, to encourage and promote technopedagogical innovations, to foster the development of individual and collective technopedagogical skills, to consolidate existing expertise, and to develop synergy between key people both internally and externally. The Pôle's team is made up of several technopedagogical advisors, research assistant students, and professors.

By definition, an innovation in education is about improving what exists and what may be perceived as problematic or in need of improvement from the perspective of teaching and learning. Educational innovation is therefore about producing new models, tools, strategies, or situations in order to introduce them in a specific context. The issues raised arise from recurrent situations that have gradually built up over time or from unexpected and sudden situations such as the health crisis caused by COVID-19. In all cases, to be successful, an innovation must be rigorously developed and validated. Then, in order to become established in a sustainable manner, an innovation must be enlightened and explained so that all those who can benefit from it can adequately appropriate it by grasping its various characteristics and dimensions. Above all, for an innovation to really unfold its long-term benefits, it must be accompanied by resources and training. Indeed, during the design, experimentation, and implementation phases of an innovation, new knowledge is built by the people who develop it. Consequently, without resources and training, other people who want to implement these innovations would be condemned to repeat the entire innovation process, which would be completely counterproductive.

Thus, a unit such as the Pôle can play a leading role in the long-term transformation that innovations can create. This role can occur at different levels: when a need for innovation emerges; when an innovation is designed and implemented; and when an innovation is disseminated and emancipated. Here are some of the actions that are currently being carried out in Sherbrooke:

1. To support the emergence of innovation, the Pôle's team proposes, for example, activities: to help teachers discover new educational opportunities offered by certain digital technologies (workshops, demonstrations, conferences, etc.); to document innovations made in other contexts or other institutions (summaries, syntheses, etc.); to question teachers or students about their current practices (surveys, focus groups, etc.); and to help circumscribe innovation needs (co-writing of funding applications,

presentations at conferences, etc.). Whatever form these actions take, it is important for teachers to be stimulated, guided, and accompanied in order to identify and understand the situation(s) they wish to improve, and to discover or imagine new avenues and paths of which they sometimes have no idea. The Pôle's team has this technopedagogical expertise which is essential for thinking up relevant innovations. It is therefore precious for teachers who do not necessarily have the time or interest to develop this expertise.

2. To design and implement innovations, the Pôle's team works closely with teachers and their teams using rigorous instructional design methods and approaches (ADDIE or MISA). In addition, according to the iterative logic of design-based research models, innovations are built in several iterations on a progressive scale (a- small tests without students; b- experiments with small groups of students; c- implementation in a full class). Several elements must be considered to justify this logic: avoid blindly acquiring inefficient digital resources, adequately train teachers with digital tools and the associated technopedagogical methods, systematically document processes and impacts on teaching and learning, and design technopedagogical devices on stable and solid foundations. The Pôle's team guides teachers throughout the design and conception process by identifying potential solutions, testing new tools, exemplifying potential multimedia resources, providing training in certain technopedagogical functionalities or strategies, and documenting the various iterations with the purpose to improving subsequent ones.
3. To support sustainable implementation, the Pôle relies on training activities (workshops, meetings, communities, etc.), communication (written publications, videos, etc.), and sharing (resources produced, results of experiments, etc.). In doing so, it allows the teachers at the origin of the innovation to be valued and recognized while being released from this part. It also allows other teachers to benefit from the work and innovations previously carried out, to implement and adapt these innovations to their own contexts and audiences, and to save precious time. More broadly, the Pôle plays a central role in this crucial phase for the sustainability of an innovation since it helps to create a rich collective culture, knowledge transfer, and transversal technopedagogical rigour.

In the particular context that we are experiencing in higher education institutions in 2020, it is important for the Pôle to consider all the measures, adaptations, and changes that are being made not as temporary emergency measures, but as innovations on which we will build collectively and from which we will be enriched. Of course, the timeframe in which all this must be implemented is very tight, but we can rely on previous innovations, already documented pedagogical uses and practices, a well-established synergy between services (purchases of digital materials and tools are made by the IT services in close collaboration with the Pôle's team), or the expertise of the Pôle's team and the resources it possesses and shares. For all the innovations implemented at the start of

the 2020 school year, not only will teachers be guided, trained, or supported, but the impact will be studied, lessons will be learned, and adaptations will be proposed.

Commentary: Looking Forward in Times of Crisis: An Opportunity for TLC Leadership

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The COVID-19 pandemic and the ensuing response from most post-secondary institutions to cease face-to-face instruction has only reinforced the critical role that teaching and learning centres play in providing instructional support and advice on good pedagogical practice. Indeed, if there can be a silver lining to this pandemic, it is that teaching and learning centres have been universally recognised as playing important leadership roles at the institution both in terms of guiding university practices but also in directly assisting instructors pivot online and prepare for remote teaching for the foreseeable future. In a context of where the current pandemic will not last forever it is necessary to consider what teaching and learning should look like in a post-COVID world.

Thinking proactively about leadership will ensure that teaching and learning spaces in post-secondary education remain relevant and well supported going forward. We propose that post-pandemic teaching and learning centres (TLCs) need to consider the following: its relationships and interface with instructors and academic leadership, how student success is considered and measured, and how digital or online learning in a context of a return to face-to-face instruction continues to be integrated into our institutions.

Fundamentally a teaching centre effectiveness is guided by the relationships it builds both with the teaching community and the institution's academic leadership. We believe that TLCs must continue to provide value through its service to individual instructors. This invariably means being hands on, responsive, and attuned to instructors needs. While this is important in building relationships, an effective TLC also demonstrates value to the institution by driving systemic change through activism. At Carleton this means being deliberately and explicitly aligned to our institutional strategy - and in many cases establishing the institution's teaching and learning goals. TLCs need to be proactive - instead of waiting for instructors or academic leaders to reach out or problems to arise, TLCs need to be a few steps ahead, prepared to encourage and guide instructors and academic leaders into a pedagogically innovative space. This has not been the way TLCs have traditionally operated, and thus

requires a culture shift. Effectiveness at the institutional level also involves engaging regularly with the Deans to understand their teaching challenges and priorities with the goal of making them partners in TLC initiatives and activities. Doing this helps ensure that the Deans have a stake in the success of the TLC, creating strong advocates and voices at the institution.

TLC should be fearless in advocating, promoting, and programming for student success and effective teaching practices. The pandemic has reinforced that the time for quiet advocacy of student-centered learning is not enough. TLCs must engage everyone in discussions on these issues, while raising awareness that student success is about encouraging and capacitating instructors and institutions to use pedagogical practices that develop the whole student, and not only about improving grades.

TLCs should not shy away from pursuing significant institution-wide initiatives - while positive change takes place with individuals, systemic change should also be pursued with creative and well planned programs, departmental, faculty and institutional initiatives. One example of an institutional initiative at Carleton is the Students As Partners Program (SaPP). Our SaPP program provides opportunities to undergraduate students to contribute to the academic directions of projects. This can include co-designing and contributing to the development of curriculum, helping design course materials such as assessments, LMS course sites, and multimedia tools, enhancing the use and understanding of assessment criteria, and working on scholarship of teaching and learning projects. Nearly 10% of all instructors at Carleton are working with Student Partners this summer. Not only do instructors receive support, but Carleton students are participating in meaningful experiential learning activities, enhancing their networks, developing skills, and receive financial compensation.

Ethical data driven decisions. Increased adoption of educational technologies has meant that we arguably know more about our students' activities than ever before. At the same time this data may be essentially meaningless without context and critical reflection. Learning and student engagement cannot be measured by the number of times a student views a video or clicks on a page. Yet a nuanced look at how students are using tools can provide useful insight into student behaviours - and this insight can be helpful in refining how learning might be best designed and supported by instructors. TLCs need to develop capacity and understanding to be able to guide ethical data collection and their analysis to help make more informed decisions about how best to support teaching and learning. At the same time, TLCs need to look internally at their own programs and activities to ensure that they are aligned, and their impact is measured, qualified, and communicated in an appropriate manner.

One of the biggest ramifications of the pandemic is the demystification of online learning going forward. The pandemic will not result in institutions wholly going online. The value proposition of face-to-face learning is too significant to abandon or diminish it. That said, many who have done the pivot will now understand how online or blended approaches can augment and enhance face-to-face learning environments. This means a far greater emphasis going forward on instructional design and correct/effective use of educational technology. We think that TLCs have a leadership opportunity to

move these conversations forward as well guide investments in educational technologies and support for instructors and students.

Our teaching centre's response to COVID-19 was significant because of the holistic nature of the centre - the scope of Carleton's teaching centre includes online learning, educational technology, educational development, media production, undergraduate research, and instructional design. The mixture of pedagogical and technological expertise and services meant that our response to the pandemic was organized and comprehensive. Thinking toward the future, this seems to suggest that post-pandemic teaching centres should consider an integrated approach that brings together teams which can address the breadth of teaching at the institutions. This requires breaking down artificial silos between educational technologies and pedagogies and integrating responsibility for digital learning directly into a teaching centre.

Commentary: CTL Challenges and Actions – Returning the Focus to High Quality Education

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I commend the CTLs on the outstanding work they are doing under difficult circumstances. Faculty like myself are very grateful for your support. In this Commentary, I focus on the second and third paragraphs in the report section on *Returning the Focus to High Quality Education*.

Necessity is the Parent of Transformation

For more than four decades, I've been working to transform industrial-era education (one-size-fits-all teaching-by-telling & learning-by-listening). One insight I've gained is faculty believe they need additional resources to transform standard practices, but—when people have extra assets—they use these to do more of the same: old wine in new bottles. Transformation comes primarily when people have no choice, when the current model cannot be sustained, and they must do something radically different. Now, civilization is in crisis, and faculty cannot make every home into a remote classroom. The issue is whether we will use this opportunity to create a more effective, universal model of instruction based on modern knowledge about learning (National Academies of Sciences, Engineering, and Medicine, 2018), a system that provides *every* student the support to reach their full potential. If we succeed, when COVID-19 is under control higher education will not revert to established suboptimal and unfair practices, but instead will sustain a "new normal" of universal, blended, personalized, lifelong learning.

Transforming to become *much* better is crucial. My recent co-edited book (Dede & Richards, 2020) describes the looming challenge/opportunity of a coming, epic half-century whose intensity of disruption will rival the historic period civilization faced from 1910-1960: two world wars, a global pandemic, a long-lasting economic depression, and unceasing conflicts between capitalism and communism. To fulfill their responsibilities in preparing students for a turbulent, disruptive future, faculty in every subject area are now faced with developing young people's capacity for unceasing reinvention to face an uncertain and changing workplace, and for inventing and mastering occupations that do not yet exist. Our students must develop personal dispositions for "thriving on chaos": creating new value, reconciling tensions and dilemmas, and assuming moral/ethical agency on equity and respect for diversity (OECD, 2018). To accomplish this, they will need knowledge and skills underemphasized in current curriculum standards and omitted from today's high-stakes summative tests: fluency of ideas, social perceptiveness, systems thinking, originality, and conflict resolution (Bakhshi, Downing, Osborne, & Schneider, 2017). This is a much higher standard for educational outcomes than what we are accomplishing with industrial-era practices and structures of higher education.

Basing Instruction on Modern Knowledge about Learning

I believe this terrible human crisis offers unique opportunities to strategically respond to these challenges. Theory and evidence (National Academies of Sciences, Engineering, and Medicine, 2018) show the benefits of using innovative teaching strategies based on current knowledge about learning. These next-generation instructional models are characterized by:

- utilizing collaborative, guided learning-by doing to complement passive learning-by-assimilation;
- providing students agency to include their personal interests in what they are learning, and infusing these into the curriculum to be covered (LEAP Innovations, 2020);
- complementing high stakes tests with diagnostic/formative assessments that measure a broad range of knowledge and skills useful in life; and
- involving many types of people as "teachers" in various life-settings of students, extending learning outside of the classroom into rich opportunities for internships and field experiences made possible by learners staying in their local area.

All these desirable strategies are now being implemented in remote learning by well-prepared and supported faculty, whose creativity has been unleashed by the pandemic undercutting the dead hand of past habit and tradition.

As for measuring success by high-stakes tests, as described in Luckin's 2018 book, *Machine Learning and Human Intelligence,* such an approach prepares students for jobs deskilled by artificial intelligence (AI). Instead, as discussed in Fadel's 2019 book, *Artificial Intelligence in Education,* students should learn what AI cannot do, preparing themselves to roles upskilled though intelligence augmentation (IA) in which people working with smart machines accomplish more than either can unaided.

Unlearning by Faculty and Administrators in Higher Education

Whatever models emerge, they must include strategies that help those now involved in higher education—both providers and students—to transformatively change their behaviors. In my opinion, the biggest barrier we face in this process of reinventing our current methods, models, and organizations for these activities is unlearning. We have to let go of deeply-held, emotionally-valued identities in service of transformational change to a different, more effective set of behaviors (Kegan & Lahey, 2009). This is both individual (an instructor transforming practices from presentation and assimilation to active, collaborative learning by students) and institutional (a higher education institution transforming from degrees certified by seat time and standardized tests to credentials certified by proficiency or competency-based measures).

Unlearning requires not only novel intellectual insights and approaches but also individual and collective emotional and social support for shifting our identities—not necessarily in terms of

fundamental character and capabilities, but in terms of how those are expressed as our context shifts over time. Building on the work of Bailenson (2018) and Slater & Sanchez-Vivez (2016), my colleagues and I at Harvard are studying how immersive media (virtual reality, multi-user virtual environments, mixed reality, augmented reality) can enhance unlearning in service of transformational change. I believe the success of any transformative model for education will rest on its inclusion of powerful methods for unlearning and capacity building in the people who will implement this new approach.

I encourage the CTLs to continue their important work in supporting faculty who are ready for next-generation instruction and assessment in going through the learning/unlearning process, so higher education can prepare students for lifelong learning in the global digital economy.

Commentary: Learning Centres, Our Time Has Come

Roger Kaufman
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The pandemic has changed everyone's lives. Faculty have been pushed, not so gently, from lecturing to actual requirement to deliver real learning opportunities. Learners now must take what they are provided and prove mastery. Changes to our higher education world have been coming anyway, this just put the spotlight on our requirement to change…as indeed the rest of the world is changing with new realities. But we are ready.

The masks are off. What is called "distance learning" is usually pushing out existing lectures to remote recipients. The results are usually disappointing. Teaching and Learning Centres can help…if we have the courage to really sit at the table based on our new recognized importance and help faculty and learners achieve useful measurable results.

Now is the hour for us to help a wider range of clients. We know more and more about learning and about the delivery of learning opportunities; at this point we have to come out of the shadows and disrupt—for the common good—the increasingly archaic model of higher education. Not only can we help during the pandemic but help set up a new-age teaching/leaning university.

A Possible Dual Track Approach:

First, get to work with the key learning partners on how each can be responsive. Provide, mentoring, the essentials for faculty about how to redesign their courses from telling to learning. Start, for the first iteration, and build each time you mentor.

You know how to do all of this. Just do it. Take the lead. Make a measurable difference.

At the same time, provide mentoring for learners on how they can benefit from distance learning (such as from Watkins and Corry, 2015).

The second thrust: create the future: add value to our shared society. This will "push" the current boundaries of Centres but doing so will lead to a more efficient and effective future. Note that this second thrust is not for each course, but parallel to assisting faculty but when done, will inform what is being done in Thrust One.

Design courses that will also be essential to developing future responsive curriculum that will enable learners help to create a better tomorrow for all. A competent citizen is more than the salad of courses they have taken. Each learning experience should help learners become constructive citizens. And we must teach how to think and not what to think.

A primary tool for this is Needs Assessment, not a wants assessment. And we do it as an Outside-in Approach, where we start planning and doing the needs assessment by identifying the needs of our shared society—outside of our organization. This is different from the usual Inside-out approach where we assume the purposes of the organization are useful and correct. For example, start by asking "if my university is the solution, what's the problem."

Let us look at some basics of a valid and useful needs assessment approach.

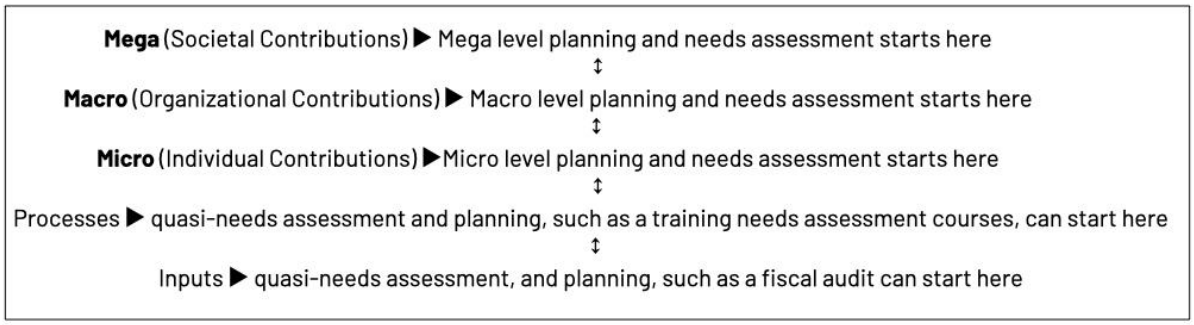
Focus on needs—gaps between current and desires results, not wants (as discussed earlier). Support for this importance for using need as a noun and not a gap in wants, is from the world of humor: You don't need a quarter inch drills. You want quarter inch holes (George Carlin)

Purpose drives everything and since needs are gaps in results, objectives come from the What Should Be part of an identified need.

Needs should be, assessed at all levels of all organizations. Starting with Mega/society will give us valuable information for both planning courses but linking and aligning all courses to add measurable societal value.

Figure 1 is the hierarchy of planning and needs assessment. These data at the three levels will provide the performance criteria--objectives—for planning and integrating courses for measurable value.

Figure 1. Organizational Elements (Mega, Macro, Micro, Process, Inputs), the Planning hierarchy, and the linking of all of levels with an example of three varieties of needs assessments that form a possible needs assessment hierarchy



Note the connecting arrows are two-way, thus encouraging dynamic interactions

Why should Centres start at Mega? That is where we do and will live, and our learners of today will shape our future. Everything, including courses, should contribute to all levels of the hierarchy. Given these data, faculty can develop performance objectives to deliver collective value. Successful organizations link and align all levels.

We prepare learners for citizenship so we should start our planning and needs assessment outside of our organization to the worlds of tomorrow where they will live and build.

To avoid just doing whatever we are now doing and look to creating a better tomorrow, we start planning and needs assessment from outside-in society.

Centres can start helping with individual courses—primarily at the Process and Micro levels, as well as helping to reform their universities. The concepts and tools we now have are generalizable.

Creating the Future

When you identify needs at the Mega level, then the Macro Level, and then at the Micro level you can work with faculty to identify how their course will add value up the hierarchy so they can justifiably then revise their course objectives and they revise their course content as required.

Thus, they will have a more responsive course and the performance objectives against they will teach and evaluate. And it will be responsive to what learners can really use now and in later life.

Link this with the first thrust and you and your university will provide the leadership for relevant education during and after the pandemic.

Centers have to help but also show leadership in changing the current education model. Otherwise, we are just putting Band-Aides on brain tumors.

You know how to do it and can do it. Keep your seat at the table.

Add measurable value to our shared world.

Since the eruption of the unprecedented crippling COVID-19 pandemic, CTLs donned their capes and bridged gaps to help faculty ensure quality education for all students, regardless of the delivery modalities. Given the continued turbulence in the environment related to the pandemic and inability of government officials and scientists to predict the end of the pandemic or the wide-scale release of a reliable vaccine, the work of CTLs has just begun.

BIOGRAPHIES: THE RESEARCH TEAM & REPORT CO-AUTHORS

Researchers

Dr. Nadia Naffi is an Assistant Professor of Educational Technology in the Department of Teaching and Learning Studies at the Faculty of Education and holder of the Chair in Educational Leadership (CLE) in Innovative Pedagogical Practices in Digital Contexts – National Bank at Université Laval. She holds a doctorate in education (educational technology) and a master's degree in educational technologies from Concordia University, as well as a bachelor's degree in interior design from The Lebanese American University. She was awarded the Governor General's Gold Medal of Canada – Individual and Society 2018 for the excellence of her doctoral thesis. Naffi is also the recipient of the SALTISE 2019 Best Practices & Pedagogical Innovators Award. Naffi has taught online and face-to-face courses in the areas of digital media, instructional design, human performance technology (HPT), distance education, social technologies and the socio-cultural aspects of learning, consulting in edtech, and qualitative research methods at Ontario Tech University and Concordia University. She currently teaches multimodal courses in educational technology at Université Laval. As Chairholder, Naffi one focus of her research is the ethical, critical, responsible and sustainable application of disruptive technologies such as artificial intelligence in education, training, talent development and upskilling and reskilling of the future and current workforce for the future of work.

Dr. Ann-Louise Davidson is an Associate Professor in Educational Technology and Concordia University Research Chair in Maker Culture. She is Associate Director of the Milieux Institute for Arts, Culture and Technology and she directs #MilieuxMake, the Milieux makerspace initiative. She created Education Makers, a community of educators, students and community members who strive to develop the emergent profile of maker education with an edge. She co-designs innovative learning experiences and concepts that draw on crucial themes, such as global issues, health, sustainability and youth motivation, through concrete maker activities such as building gaming tables, gamepads, wearable computing, pedagogical robotics, computational thinking and 3D printing, while engaging marginalized communities. She developed an international reputation for her disruptive pedagogical innovations with emergent and digital technologies. She has published numerous papers on learning with technology, recent issues with digital technologies, has engaged in research creation, and has given keynote speeches in Latin America, Europe and the Middle East.

Dr. Roger Kaufman, CPT is Professor Emeritus, Florida State University, Senior Fellow at Florida TaxWatch, and has served as Distinguished Research Professor at the Sonora Institute of Technology (Mexico). He received ATD's Distinguished Contribution to Workplace Learning and Performance award. Also, he is a founder, past president, honorary life member and Thomas Gilbert Award winner, all with ISPI, Kaufman has published 41 books and 330+ articles on strategic planning, performance improvement, talent development, leadership, quality management and continual improvement, needs assessment, management, and evaluation. He consults world-wide with public, private and NGO organizations and universities and most recently with the President and Minister of Tourism of Panama, the Civil Service Commissions of Taiwan, the Tze-Chain Foundation of Science and Technology (Taiwan), as well as the

Department of Labor, Korean Government. At Florida State he created the Center for Needs Assessment and Planning that did applied research and development. He headed the team that started distance learning at Florida State University The literature often sites him as "the father of needs assessment." The International Society for Performance Improvement (ISPI) has created the Roger Kaufman Award that *recognizes the continuous achievement of measurable positive societal impact by an individual or organization.* He is a Fellow of the American Psychological Association as well as of the American Educational Research Association. Website: Megaplanning.com

Dr. Richard E (Dick) Clark is Professor Emeritus of Educational Psychology and Technology in the Rossier School of Education, Clinical Research Professor of Surgery in the Keck School of Medicine and former Co-Director of the Center for Cognitive Technology at the University of Southern California. Before coming to USC, he was a faculty member in the School of Education and director of educational technology at Stanford University. He is the author of over 300 published articles and book chapters as well as five recent books. In recent years he has received the 2013 USC Faculty Lifetime Achievement Award, the Thomas F. Gilbert distinguished professional achievement award and a Presidential Citation for Intellectual Leadership from ISPI, the Socrates award for excellence in teaching from the graduate students at USC and the Outstanding Civilian Service Award from the U. S. Army for his work in distance learning. He is an elected Fellow of the American Psychological Association (Division 15, Educational Psychology), the American Educational Research Association, the Association of Applied Psychology and is a Founding Fellow of the Association for Psychological Science. His current interest is in evidence-based practice in online and technology-based instruction.

Dr. Brian Beatty is Associate Professor of Instructional Technologies in the Department of Equity, Leadership Studies and Instructional Technologies at San Francisco State University. Brian's primary areas of interest and research include social interaction in online learning, flipped classroom implementation, and developing instructional design theory for Hybrid-Flexible learning environments. At SFSU, Dr. Beatty pioneered the development and evaluation of the HyFlex course design model for blended learning environments, implementing a "student-directed-hybrid" approach to better support student learning. Previously (2012 – 2020), Brian was Vice President for Academic Affairs Operations at San Francisco State University (SFSU), overseeing the Academic Technology unit and coordinating the use of technology in the academic programs across the university. He worked closely with IT professionals and leaders in other units to coordinate overall information technology strategic management at SFSU. Prior to 2012, Brian was Associate Professor and Chair of the Instructional Technologies department in the Graduate College of Education at SFSU. He received his Ph.D. in Instructional Systems Technology from Indiana University Bloomington in 2002. Dr. Beatty also holds several CA single-subject teaching credentials, an M.A. in Instructional Technologies and a B.S. in Electrical Engineering.

Dr. Didier Paquelin, Professor and holder of the Chair in Educational Leadership in Higher Education Pedagogy at Université Laval, has been conducting studies and research on the transformation of teaching and learning practices in a digital context for the past 30 years.

His work focuses on the analysis of the complexity of the processes of appropriation of digital devices for training and learning, in both formal and non-formal contexts. Her research addresses the evolution of practices by analyzing the interactions between pedagogical paradigms, digital devices and formal, non-formal and informal learning spaces developing the notion of pedagogical ecosystem. He has carried out several studies with a holistic focus on the evolution of students' training and learning expectations and practices in higher education. His national and international longitudinal research focuses on the impact of public policies in higher education on the transformation of pedagogical practices. Expert for 6 years with the French Ministry of Higher Education, Research and Innovation on pedagogy and digital issues. He has contributed to the organization of numerous national and international conferences on higher education in the digital age and is strongly involved in several Franco-Quebec collaborative actions.

Consultants

Dr. Dawn M. Snyder, CPT, Prosci CCMP is the founder of Dawn Snyder Associates, a firm that consults on learning strategies, curriculum architecture, performance assessment and evaluation. Dawn has a proven track record of bringing practical, cutting-edge solutions to organizations who want to take performance to the next level. She helps these organizations achieve results by combining contemporary evidence-based best practices from a variety of disciplines, including learning and talent development, performance improvement and change management. She is the go-to consultant for initiatives that impact global learning and performance and talent development. Dawn has also worked within organizations as a manager and change agent to build high-performing teams and programs that achieve transformative business results. She is recognized as an expert on analyzing what “good” looks like and helping groups at all levels push past barriers and achieve dramatic market, revenue and business success. She is passionate about supporting emerging talent and has worked in universities and corporations to build curricula and teach in programs that credential high-performing individuals. She serves on the Advisory Board of the Doctor of Professional Studies in Instructional Design Leadership at Franklin University and regularly teaches in doctoral programs at Franklin University and The Ohio State University.

Guy W. Wallace is a Performance Analyst and Instructional Architect – and has been designing and developing performance-based Instruction for Enterprise Learning and business critical target audiences since 1979. Guy has worked as an ISD consultant since 1982, serving over 80 clients, primarily in the Fortune 500. In 2010 Guy was the recipient of the Honorary Life Member Award from the International Society for Performance Improvement – its highest award requiring unanimous approval by two successive boards - for his contributions to both the technology of Performance Improvement and his contributions of the Society. Guy's ISD work has won awards at General Motors, and Siemens Building Technologies, and external awards from ISPI, and at ASTD/ATD for work done with AT&T, Chamberlin Edmonds – Emdeon, HP, and Imperial Oil. Since 1982 he has specialized in Curriculum Architecture Design via a Facilitated Group Process. In 1984 he co-authored two articles on these approaches, Training Magazine - Curriculum Architecture Design via a Group Process; NSPI's Performance & Instruction Journal - Creating Models and Matrices using a Group Process.
In 2010 he was recruited as an inaugural member of ASQ's Influential Voices initiative to Raise the Voice

of Quality. He has authored over 90 articles, 14 books, and 4000+ Blog posts. He has presented professionally over 110 times.

Research Assistants

Azeneth Patino is a doctoral candidate in Educational Technology and research assistant at Université Laval. Her research interests are threefold: the pedagogical integration of technologies in education and continuing education, learning through digital games, and second or foreign language learning. She is also a consultant as a pedagogical designer of educational serious games.

Edem Gbetoglo holds a master's degree in Political Science and International Cooperation in Paris. He is currently studying for a master's degree in Administrative Sciences with a thesis at Université Laval. He is interested in topics related to compliance with environmental standards as well as communication strategies in organizations.

Nathalie Duponsel is a doctoral candidate in Educational Technology at Concordia University in Montreal, Canada. Her research focuses on maker education and the benefits DIY, design, and maker activities have for student development of STEAM concepts and 21st century skills. Nathalie's doctoral research focuses on developing assessment strategies for maker-centered and design-based pedagogues that enhance teachers' ability to document student learning while minimizing the negative effects assessment can have on creativity, student motivation, and student risk-taking. Nathalie is also a certified teacher (elementary) and has taught at a variety of levels ranging from kindergarten to university (undergraduate and graduate).

Céleste Savoie is currently pursuing a master's degree in translation and terminology at Université Laval. She previously obtained a bachelor's degree in French studies, specializing in literature, at Université de Moncton (NB). She is interested in language teaching, as well as translation in the administrative and financial fields.

Isabelle Fournel is currently studying for a bachelor's degree in psychology at Université Laval. Passionate about human behavior and counseling, she achieves to develop her interests by volunteering on an active listening service for people suffering from mental disorders and loneliness. She is involved in research by contributing to projects concerning dreams and father-child relationships. Recipient of the Governor General's Bronze Academic Medal of Canada, Isabelle wishes to pursue her university studies with a Ph.D. in psychology.

Ivan Ruby is a Ph.D. candidate in Educational Technology from Mozambique at Concordia University, researching how to introduce computer programming to novices in and for the 21st-Century. He is concerned with how technology can enable us to build a better, fair, and sustainable future. His research interests span Computer Science Education, Communities of Practice, and Collaborative Learning. He is a member of the Education Makers research group at the Milieux Institute for Arts, Culture and Technology at Concordia University.

BIOGRAPHIES: GUEST COMMENTARY AUTHORS

Dr. Barbar Akle is Associate Professor of Mechanical Engineering and the Assistant Provost of the Lebanese American University (LAU). He holds a PhD in Mechanical Engineering from Virginia Tech. His main research is focused on improving, modeling, and characterizing Electro-Active Polymers (EAP) that are also known as artificial muscles. His work led to better understanding of Ionic Polymer Metal Composites (IPMC) and to the development of applications such as robotic jellyfish, wall shear stress sensors, and currently working on developing Inner Ear Hair Cell sensors for the hearing disabled and highly efficient buoyancy engines. Recently, he is leading a new research to develop a low cost and healthy exoskeleton system for the paralyzed and working with CERN to develop magnetic field resistant robots. He has published more than 80 peer-reviewed international articles and authored 5 US patents.

Dr. Fawzi Baroud is UNESCO Chair on Open Educational Resources (OER), and Assistant Vice President-Information Technology at Notre Dame University- Lebanon. Over a period spanning 30 years, Dr. Fawzi Baroud has been engaged in promoting technology as a pedagogical tool tied to meeting educational objectives and assessment of learning outcomes in higher education. Specialized in eLearning, systems management, mathematics and electrical engineering, he combines numerous areas of academic expertise for advancing the use of technology in different curricular content areas. As champion of open education on campus, Dr. Baroud has made the integration of Open Educational Resources (OER) a key strategic goal of the University. He conducts seminars and hands-on workshops on open education and open licensing at leading higher education institutions and has become a reference point on the subject.

Dr. Tony Bates is a Senior Advisor at the Chang School of Continuing Education, Ryerson University, Toronto and is also a Research Associate at Contact North, Ontario. He is currently Chair of the Board of the Canadian Digital Learning Research Association. He was a founding staff member of the British Open University, becoming a full professor in educational media research. In 1989, he became Executive Director, Strategic Planning and Information Technology at the Open Learning Agency, Vancouver. From 1995 to 2003 he was Director of Distance Education and Technology at UBC. He has worked as a consultant in the design and management of online and distance learning in over 40 countries. He is the author of twelve books, including his latest online, open textbook for faculty and instructors, 'Teaching in a Digital Age', which has been downloaded over 500,000 times and translated into ten languages.

Dr. Julie Desjardins is a full Professor and Associate Dean of education at the Faculty of Education of the Université de Sherbrooke. She holds a Ph.D. in education from Université de Montréal and an MBA for practicing executives from Université Laval. Her work focuses on training programs for the development of professional skills, where she is interested in the pedagogical, organizational and social dimensions. In her current position, she is responsible for all professional training programs and is also in charge of the communication team of the Faculty of Education.

Dr. Rula Diab is Associate Professor of English and Assistant Provost for Academic Affairs at the Lebanese American University (LAU) in Beirut, Lebanon. She teaches courses in applied linguistics, sociolinguistics, and advanced academic writing. She is the founding director of the LAU Writing Center, and her research

interests include learner and teacher beliefs about second/foreign language learning, particularly second language writing; writing centers; writing in the disciplines; in addition to socio-cultural and political factors in second/foreign language acquisition. Her research has appeared in journals such as System, Journal of Applied Research in Higher Education, TESOL Journal, Computer Assisted Language Learning Electronic Journal, and the International Journal of English Linguistics.

Dr. Chris Dede is the Timothy E. Wirth Professor in Learning Technologies at Harvard's Graduate School of Education. His fields of scholarship include emerging technologies, policy, and leadership. In 2007, he was honored by Harvard University as an outstanding teacher, and in 2011 he was named a Fellow of the American Educational Research Association. His co-edited books include: *Scaling Up Success: Lessons Learned from Technology-based Educational Improvement; Digital Teaching Platforms: Customizing Classroom Learning for Each Student; Teacher Learning in the Digital Age: Online Professional Development in STEM Education; Virtual, Augmented, and Mixed Realities in Education*; *Learning engineering for online education: Theoretical contexts and design-based examples*; and *The 60-Year Curriculum: New Models for Lifelong Learning in the Digital Economy.*

Dr. Moira Fischbacher-Smith is Professor of Public Management and Vice Principal Learning & Teaching at the University of Glasgow. She has responsibilities in relation to strategy and policy development for learning and teaching, and in relation to learning enhancement. She is a member of the Board that is developing a new Learning and Teaching Hub on the University's main campus. Moira's teaching and research interests are in partnership working, interorganisational networks and strategy and organisation, in particular within health and social care settings. She is a Chartered Manager and Principal Fellow of the HEA (PFHEA).

Dr. Aline Germain-Rutherford is Vice-Provost, Academic Affairs, at the University of Ottawa and Full Professor in the Faculty of Education. Dr. Germain-Rutherford holds a doctorate in Didactics of second languages and cultures from the Sorbonne Nouvelle (Paris III) and is the author of numerous publications on faculty development, second language pedagogy, speech technology and e-learning. She led several national and international research initiatives in pedagogy for higher education and on the development of online environments inclusive of all cultural diversities. She has been a keynote speaker and a visiting professor in Africa, Asia, Europe, the Middle East and North America. She is a recipient of the 3M National Teaching Fellow Award, a Canadian Award that recognizes excellence in teaching and leadership in higher education.

Dr. David J Hornsby is the Associate Vice-President (Teaching and Learning) and a professor in Carleton's Norman Paterson School of International Affairs. His research interests include pedagogy in higher education, science in the international political economy and Canadian foreign policy in Africa. He has a strong interdisciplinary research record, having published in both the biological and social sciences. A well-respected educator, Hornsby has received teaching awards and has taken a research-based approach to teaching.

Jaymie Koroluk is the Assistant Director, Educational Development Centre, Carleton University. Having worked at several postsecondary institutions in the areas of educational development, instructional

design, and educational technology, Jaymie's broad base of experience drives her to advance multifaceted and holistic approaches to supporting and improving teaching practice in higher education. Jaymie has just completed her term as the vice-chair, professional development, the Educational Developers Caucus, the Society for Teaching and Learning in Higher Education (STLHE).

Hubert Lalande, a teacher by training, worked for nearly 10 years in educational television and then in the field of digital educational resource publishing. He has been involved in distance learning for nearly 20 years and has collaborated, among other things, on Ontario's e-learning strategy from 2006 to 2018. For eCampusOntario, Hubert was responsible for the Francophone Initiatives Program for Experiential Learning and for the development of open educational resources for higher education. Since April 2020, as Manager of Digital Development at TLSS, he is in charge of the new Pedagogical Development and Digital Learning Specialists team, which supports the University of Ottawa Faculties in their accelerated transition to distance education and learning.

Patrick Lyons is the Director, Teaching and Learning, at Carleton's Teaching and Learning Services. He's a co-founder of the Ontario Council of eLearning (OUCEL) and a co-recipient of the 2006 Council of Ontario Universities' Award for Excellence in Teaching with Technology. Believing in the power of stories to cause positive change, in 2019 he published with colleagues at Carleton University an anthology of short stories called Courage, Curiosity, Teapots and Snake: Stories of Teaching at Carleton University. He coaches the Carleton University Competitive Squash Team, believes in empowering people, and has a passion for learning, Lego, dinosaurs, squash and Star Wars.

Dr. Florian Meyer is Associate Professor in Integration of Technologies in Education in the Department of Pedagogy of the Faculty of Education of the Université de Sherbrooke and is responsible for the Pôle d'Innovation Technopédagogique of the Faculty of Education**.** With a Ph.D. in Educational Science from Université de Montréal in 2010**,** his scientific and pedagogical interests focus on the technological training of teachers for the purpose of educational design, pedagogical design, the use of videos for teacher training, digital learning environments and e-portfolios or the integration of digital in teacher training practices.

Richard Pinet is Director of the Centre for Innovative Pedagogies and Digital Learning within the Teaching and Learning Support Service at the University of Ottawa. Over the last 17 years the Centre has been awarded 14 regional and national e-learning awards. Richard has served as a board member of the Ontario Council for University Lifelong Learning (OCULL), a member of Education City's Education Principles Committee. He is also the co-founder of the Ontario Universities Council on e-Learning (OUCeL). Richard's background is in Communication (Media Studies, Organizational Communications and Critical Pedagogy). He has taught at the University of Ottawa, Simon Fraser University, Trent University and the University of Western Sydney.

Dragana Polovina-Vukovic is the research and strategic initiatives officer at Carleton University's Teaching and Learning Services. With interest in e-learning and the scholarship of teaching and learning, she has collaborated with her Carleton's colleagues on a variety of research projects on teaching and learning in

higher education, as well as on student academic success. Dragana was part of the team that won the Service Excellence for Innovation award for Carleton's first massive open online course.

Dr. Bart Rienties is Professor of Learning Analytics and head of Academic Professional Development at the Institute of Educational Technology at the Open University UK. As Associate Director he leads a group of academics who provide university-wide academic professional development and innovation courses and conduct evidence-based research of how professionals learn. As educational psychologist, he conducts multi-disciplinary research on work-based and collaborative learning environments and focuses on the role of social interaction in learning, which is published in leading academic journals and books. His primary research interests are focussed on Learning Analytics, Professional Development, and the role of motivation in learning. Furthermore, Bart is interested in broader internationalisation aspects of higher education. He has successfully led a range of institutional/national/European projects and has received a range of awards for his educational innovation projects.

Dr. Roland van Oostveen holds an Honours Bachelor of Science degree in Marine Biology from the University of Guelph, as well as Master of Education and Doctor of Philosophy degrees in Curriculum, Teaching and Learning from the University of Toronto. Dr. van Oostveen currently serves as the Director of the Educational Informatics Laboratory (EILab) at the Faculty of Education, UOIT, an innovative research facility which is focused on Human Computer Human Interactions (HCHI). As the director of the lab, Roland's major research interests lie in the use of technology and its assistance in learning. Dr. van Oostveen is currently studying human interactions mediated through online learning environments. Capitalizing on his extensive hardware and software support experience, Dr. van Oostveen is particularly interested in creating educational learning environments in order to concentrate on problems that are set in 'real world', ill structured, and open-ended contexts.

Dr. Laura Winer is the Director of Teaching and Learning Services (TLS) (www.mcgill.ca/tls) and Associate Professor (Professional) in the Department of Educational and Counselling Psychology at McGill University. TLS has been at the centre of McGill's pivot to remote teaching, providing critical support for instructors and students. In ordinary times, TLS oversees many University-wide initiatives, including the design and redesign of classrooms and teaching labs, faculty development programs, student professional skills development, the use of technology in teaching and learning, the development of McGill's fully online programs, and policy development. In addition to leading the TLS team, she has published extensively in the field of Scholarship of Teaching and Learning, has received numerous grants, and collaborates extensively. Laura has earned many distinctions and awards, including the 2020 Lifetime Achievement award from SALTISE (Supporting Active Learning & Technological Innovation in Studies of Education).

THE PARTICIPATING CENTRES – LIST OF CENTRES REPRESENTATIVES

A heartfelt thank you to the Centres and Services for Teaching and Learning for their time and the experiences they shared with our team. All centres were handling very difficult challenges and yet found time to support this report.

We need to give a special shout-out to the three extraordinary centres in Lebanon where our colleagues experienced the terrible Beirut explosion and yet managed to continue to participate.

The representatives in alphabetical order:

Barbar Akle, Assistant Provost for Special External Projects, Center for Innovative Learning, Lebanese American University, Lebanon

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APPENDIXES

Appendix 1 – Tech Companies Modified Services During the COVID-19 Pandemic – An Inventory

Name	Type	Blurb of Services	URL
Adobe	Content Creation Platform	Provided free access to Creative Cloud tools for home use by students, made shared collaboration on PDF documents free, extended the trial period for Spark! and Captivate as well as the unlimited-access period for all features on free XD plans	https://www.adobe.com/covid-19-response/program-changes.html
Amazon	E-Commerce and Cloud Solutions	Donated nearly 14000 laptops and tablets to public schools in Seattle, offered its Amazon Web Services platform for free to businesses and institutions doing research on covid-19	https://blog.aboutamazon.com/company-news/amazons-actions-to-help-employees-communities-and-customers-affected-by-covid-19
Atlantic broadband	Telecommunications Company	Created free WIFI hotspots throughout 7 states in the USA	https://atlanticbb.com/my-services/my-account/wifi-hotspots
Charter Communications	Telecommunications Company	Created free access to broadband and WIFI for 60 days for households with college students	https://corporate.charter.com/newsroom/charter-to-offer-free-access-to-spectrum-broadband-and-wifi-for-60-days-for-new-K12-and-college-student-households-and-more
Comcast	Telecommunications Company	Offered free WIFI hotspots for all, including non-subscribers	https://wifi.xfinity.com/
Coursera	MOOC Platform	Created a response initiative for universities, government agencies serving unemployed	https://www.coursera.org/coronavirus

		populations and students with free global access to courses, licenses for students, and enterprise-level admin and analytics, support resources	
Discord	Messaging Platform	Offered a free, enhanced live streaming service extending the support from 10 to 50 simultaneous users	https://blog.discordapp.com/helping-out-where-we-can-3a5fb7bac77a
Duolingo	Language Learning Platform	Prepared guides for teachers to help students learn languages at home	https://blog.duolingo.com/educator-and-parent-guide-making-the-most-out-of-staying-at-home
EdX	MOOC Platform	Provided support for the digital transformation of ed institutions with online campuses	https://business.edx.org/blog/3-ways-to-drive-digital-transformation-with-online-campus
Google Education Suite	Education Suite	Google for Education was offered for free for educational institutions with an enterprise-license-level video and virtual classrooms being offered for free for educational institutions	https://edu.google.com/products/gsuite-for-education
Kahoot	Educational Gaming	Offered free access to its Premium plan to schools closed due to the pandemic, and added integration with Microsoft Teams	https://kahoot.com/blog/2020/02/27/kahoot-free-access-schools-higher-education-coronavirus/
Khan Academy	Educational Content	Offered a free training course for educators and resources to help parents teach their children at home	https://www.amgen.com/media/featured-news/2020/03/khan-academy-steps-up-as-covid-19-keeps-kids-around-the-world-home-from-school/
Labster	Interactive Laboratory Simulations	Created training resources for educators and temporarily reduced the license cost	https://www.labster.com/covid-19/

LogMeIn	Videoconferencing	Offered free licensing for 3 months for eligible healthcare, educational and non-profit organizations	https://blog.gotomeeting.com/coronavirus-disruptions-and-support/
Loom	Screen Capture	Created learning resources to support educators, removed the recording limit on the free plan, reduced the price of the pro plan in half and extended its trial period	https://www.loom.com/blog/coronavirus-response
Mentimeter	Interactive Presentation	Created learning resources to help teachers use its platform for interactive online classes	https://www.mentimeter.com/blog/interactive-classrooms/teaching-strategies-for-the-remote-classroom
Microsoft Teams	Project Management Software	Microsoft offered a free 6-month trial with all functionalities for its Microsoft Teams platform	https://www.microsoft.com/en-us/microsoft-365/blog/2020/03/05/our-commitment-to-customers-during-covid-19
Miro	Visual Collaboration Tool	Reduced the cost of a campus-wide license, became free for upto 100 users of an accredited educational institution, and free for verified students for 2 years	https://miro.com/education-whiteboard
Moodle	LMS	Created free resources to help educators make the transition to online teaching, and joined the Global Education Coalition, a UNESCO-led partnership to respond to educational challenges posed by the pandemic,	https://moodle.com/news/weve-joined-unescos-covid-19-education-coalition/
Mural	Visual Collaboration Tool	Expanded the team size by 66%, doubled the size of the support team, scaled up	https://www.mural.co/blog/visual-collaboration-at-scale

		infrastructure capacity, power and monitoring	
Respondus	Assessment Tools	Offered a free 2-month unlimited use license for institutions for its assessment tools as well as training for educators	https://web.respondus.com/covid-19/
Slack	Project Management Software	Offered free upgrades to its standard of plus plans free of charge for three months	https://slack.com/intl/en-ca/resources/using-slack/covid-help
Socrative	Classroom Engagement and Assessment Tool	Offered extra free teacher licenses to its Showbie and Socrative Pro products	https://www.socrative.com/blog/news/covid-19-complimentary-showbie-pro-socrative-pro-for-schools-moving-to-distance-learning/
Space Foundation	Educational Content	Provided free educational resources for students, parents and educators on various science topics	https://www.spacefoundation.org/2020/03/18/for-teachers-free-professional-development-videos-to-access-during-school-closures/
Tinkercad	3D Modelling	Partnered with the Smithsonian museum to launch a free public online virtual invention program	https://adsknews.autodesk.com/news/distance-learning-spark-lab-tinkercad
Trello	Project Management Software	Created resources to help educators plan, organize and collaborate on coursework and curriculum, as well as with parent-teacher communications	https://trello.com/education
UbiSim	VR Training Platform for Nursing	Launched a new Virtual Reality training tool for nursing simulation programs	https://www.healthysimulation.com/23812/ubisim-virtual-simulation-recorder/
Unity Technologies	Game Creation Platform	Provided free access to Unity Learn Premium, with live sessions with experts and 350-plus hours of tutorials,	https://unity.com/products/learn-premium

		hands-on projects, and courses for game developers	
WhatsApp	Messaging Platform	Created resources to help educators engage with students, share assignments and deliver lessons through text and audio	https://www.whatsapp.com/coronavirus/educator/
YuJa	Screen Capturing	Created resources to guide educators and students on how to integrate video capture in their remote learning experiences	https://www.yuja.com/blog/covid-19-and-the-use-of-remote-learningvideo-learning-and-lecture-capture/
TechSmith	Screen Capturing	Created resources to guide educators and students on how to integrate video capture in their remote learning experiences	https://www.techsmith.com/blog/remote-work-learning-resources/
Zoom	Videoconferencing	Lifted the 40-minutes limit for each video conference on its free plan for K-12 schools	https://support.zoom.us/hc/en-us/articles/360039993092-Zoom-s-Commitment-to-User-Support-Business-Continuity-During-the-Coronavirus-Outbreak

More details are found:
https://docs.google.com/spreadsheets/d/1JLox1WiTFybQVy8VBGnPGl4oRMgw8IQuLp4RzC0VK1c/edit?usp=sharing

Appendix 2 – Methodology – Meeting with Centres

Our research project aimed to investigate the practices Centres for Teaching and Learning, or equivalent teams have employed to support online delivery of courses in the face of the COVID-19 pandemic.

To conduct our project, we recruited nineteen Centres for Teaching and Learning and equivalent teams through a snowball purposeful sampling. Ten educational institutions were established in Canada, four in the USA, three in Lebanon, one in the UK and one in France. The size of the centres ranged between three and 150 staff. The status of the COVID-19 pandemic and the public health guidelines also ranged between an enforcement of a limited access to campuses to a certain leniency, even encouragement to bring students back to campus.

We engaged the directors or representatives of the centres in an hour and half discussion. We conducted these meetings in French or English, based on the preference of the participant. All were video recorded, and the recordings were kept private unless an approval was granted by the participants.

The audio data was transcribed and then analyzed following the approach outlined by Miles and Huberman (1994). We began by getting immersed in the data before we engaged in an open coding exercise as per Corbin and Strauss (2015). Open coding is "the analytic process through which concepts are identified and their properties and dimensions are discovered in data" (Strauss & Corbin, 1998, p.101). We identified similar phrases, patterns, relationships between concepts or themes and we grouped those with similar properties. We isolated the patterns and processes as suggested by Miles and Huberman (1994) and we ordered and reordered the categories until saturation, as suggested by Creswell (2008). We then proceeded to layer the themes by identifying levels they fit in. The codes were validated by at least two coders. In the white paper sections, we summarize the results based on the determined themes.

The questions that guided the conversations:

1. Kindly describe your Centre for Teaching and Learning (CTL) team / the team most involved with the response to supporting faculty through the transition to online instruction due to COVID-19.
2. What were the policies, procedures, strategies, tactics, etc. that were already in place in regard to online learning before the pandemic? What percentage of courses did your institution offer online before the pandemic?
3. How would you describe your CTL's role in supporting changes resulting from COVID-19?
    a. What were the major challenges?
    b. What were/are your needs to be able to support faculty members?
    c. What would an ideal scenario look like?
    d. How did COVID-19 pandemic change the perceptions of the community in regard to the role of CTLs?
4. What were the faculty's wants and needs to successfully make the pedagogical transition from face-to-face to flexible, hybrid or 100% online instruction (synchronous and asynchronous) during the winter of 2020? Will they be the same for the fall of 2020 and winter of 2021?
    a. What were your challenges in meeting these wants and needs?

    b. How did you overcome these challenges and what were your strategies and interventions to meet the different wants and needs?
    c. What were the faculty's specific requests? How did you meet them?
5. What materials have you made available to faculty (policies, guidelines, guides, resources)? Is it possible to access these documents? Are you willing to share these documents with us? What is the best way to obtain access?
6. What were your students' most pressing academic needs in the winter of 2020, and will they be the same for the fall of 2020 and the winter of 2021?
    a. What were your challenges in meeting these needs?
    b. How did you overcome these challenges and what were your strategies and interventions to meet the different needs?
7. Equity involves not only instructional design and ensuring that regardless of instructional choices, students can achieve the same learning objectives. Equity also involves access to technology whether it is the Internet or technological equipment, platforms, etc., the use of technology for learning purposes, the environment that supports and facilitates learning, access to fundamental services and basic support structures etc.
    a. What were your strategies to address the inequity that some students experienced in moving courses online?
    b. What were the challenges you faced to ensure equitable learning and assessment experiences for your students?
8. What were the initial immediate actions you took and what are your longer-term solutions?
9. What instructional design processes and practices have you adopted and adapted for the context of the COVID19 pandemic?
    a. To what extent do they work to ensure equity among students?
    b. What are the challenges?
10. What are your centres' approaches to ensure equity among professors who do not all have the same skills to make the digital transition?
11. Based on your team's experience with the outbreak of COVID19, what essential skills should instructional designers have, or competencies do they need to develop to support faculty in an emergency context? For future needs?
12. Which other educational professionals or organizations outside your institutions have you interacted with to discuss the online transition of courses?
13. Some centres we spoke with talked about the need for filtered, structured and strategic communication, for adaptive and personalized support to faculty members, and for communities of practice within and across faculties. Have you identified similar needs?
    a. If yes, how will you proceed to ensure an effective and efficient communication moving forward?
    b. How can you personalise support?
    c. What would be your approach to encourage and support a community of practice within faculty members?
14. Did digital technologies save the school year?
15. How were digital technologies used to support the pedagogical transition?

16. How were they used to ensure equity in time of pandemic?
17. What were the lessons learned?
18. What would be your recommendations to CTLs to facilitate the different steps and types of support for faculty?
19. What are your plans for the coming semesters?
20. What impact will the online transition have in the long term on the teaching of faculty and the expectations of students?
21. What content are you looking for in the document we are preparing?

Appendix 3 – Methodology - Panorama of Publicly Shared Resources to Support the Transition of Courses Online During The COVID-19 Pandemic: A Special Focus on Equity

How Did We Collect the Data for the Panorama?

We collected and analyzed publicly shared resources from 78 CTLs in 68 universities and educational institutions located in 23 countries.

We did an online search about CTL's websites in higher education institutions and clusters publicly sharing resources to support online teaching and learning during the COVID-19 pandemic.

We respected the following criteria in our selection:

1) CTL information was available in English or French;
2) CTL's website included resources for teaching in times of COVID-19;
3) CTL belonged to universities or education institutions and clusters; and
4) CTL's public resources provided by interviewed CTL members were used to support pedagogical continuity even if the COVID-19 mention was deliberately removed.

We searched for ["Centre for teaching and learning" + university name or "Enseignement en ligne / enseignement à distance" + university name] as key concepts. When we could not find results in a Google search, we navigated within each university website in order to identify teaching and learning centres and resources. In these cases, the names of CTLs did not systematically include the key concept "Centre for teaching and learning" in their title. The search was performed within the university website using [Teaching and learning during COVID-19 pandemic]. Since CTLs have different names depending on the university or educational institution, such as Observatory of Educational Innovation, Learning Labs, Innovation Poles, Learning and Academic Development Units, and so on, it was necessary to review the information on the unit or department in order to determine whether the missions were similar to that of a CTL. Additionally, the list was completed with a) information on CTLs in the top universities of the world as listed in Times Higher Education (2020) and Top Universities (2020) websites and b) the public resources to support the transition to online teaching provided by the interviewed members of the CTLs participating in this project.

CTL's websites were constantly changing and evolving during the period in which this analysis took place. From June 2020 to August 2020, the URLs of CTL's websites were constantly being updated and sometimes relocated within each of the institution's websites. For this reason, we had to remove some of the initially documented URLs from our list and consequently, we downloaded and archived a copy of the websites in pdf documents for further analysis.

Multiple resources were addressed to faculty members and students. In most of the analyzed cases, educational institutions shared their own original resources. Some also shared a) resources published by other universities like Chicago University's Chicago Center for Teaching (2020), Northern Illinois University's Keep Teaching - Remote Teaching Support (2020) and Caltech's Teaching Continuity

(2020), some include information on inclusion, equity and access from Rice University's Center for Teaching Excellence (Jungels, 2020); and b) articles from publications and government agencies. Northern Illinois University, Indiana University (n.d.-a), and Tecnologico de Monterrey (2020) for example, curated published content from the Chronicle of Higher Education such as Miller (2020)'s *Going Online in a Hurry: What to Do and Where to Start*, and from Inside Higher Ed such as Cohan (2020)'s *Beyond focusing on educational delivery models - What Do We Need to Teach Now?*

We encountered three scenarios when collecting data:

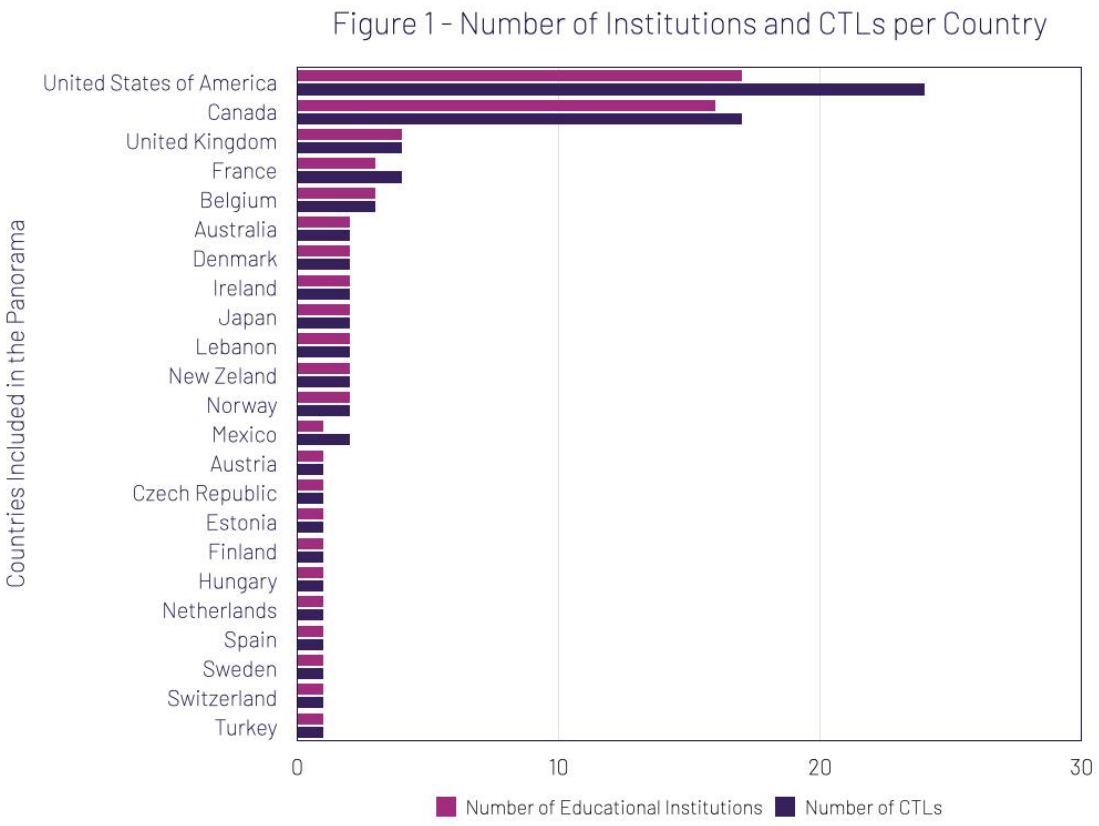
1) CTL website includes publicly shared resources with descriptions and full content access.
2) CTL website includes publicly shared descriptions of resources, but an intranet login is required to access the full content of these resources.
3) CTL website includes a mention of resources but does not include a description nor full access to these resources.

We excluded CTLs in the third scenario since no resources were publicly shared for further consultation. Additionally, as previously mentioned, we did not include CTL websites in other languages than English or French. That is, we excluded CTLs if a) there was no publicly shared information or resources in English or French about teaching and learning in times of COVID-19; b) there was no information in English or French about the CTL.

It is important to note that a couple of CTLs deliberately removed the COVID-19 mention in their websites and resources, but we included them in our data if interviewed CTL members confirmed these resources were provided with the goal of supporting the transition to online teaching and learning.

What Countries Did We Include in The Panorama?

In total, we collected data from 78 CTLs in 68 universities and institutions in 23 countries for data analysis according to inclusion and exclusion criteria. We initially collected resources to support teaching and learning during the COVID-19 pandemic publicly shared by CTLs from universities and institutions in Canada for analysis. Then, we added resources publicly shared by CTLs from top universities and institutions in OECD member countries to the list. During this stage, we only retained the CTL websites available in English or French. This means we excluded resources shared by CTLs in OECD member countries such as Italy, Greece, Luxembourg, Poland, Portugal, Slovak Republic, and Slovenia due to a lack of information about CTL in English or French. Also, we removed CTLs in Germany and Iceland since the COVID-19 page was only in German or Icelandic. We also removed CTLs in Korea, Latvia, and Lithuania since no specific information about teaching during COVID-19 resources was found on their websites in English or French.



How Did We Analyze the Data for the Panorama?

We analyzed the data we collected following Content Analysis guidelines (Class & Schneider, 2015) and the open coding approach (Corbin & Strauss, 2015). That is, multiple readings of the CTLs' publicly shared resources were performed by different coders. This required navigation within the CTLs' websites to identify similar characteristics in published resources and data-emerged categories. At this stage, we identified preliminary categories. For example, CTLs were providing different types of support to faculty members during the transition to online teaching due to the COVID-19 pandemic. We used the preliminary categories that emerged from the data to classify the resources and the type of support the CTLs provided. After group discussions among the coders, we merged similar categories, deleted redundant categories, and created new categories to constitute a new series of data-emerged codes. We reread the publicly shared resources and categorized them using the final approved codes. We present the results of this analysis in the following sections.

Appendix 4 – Transition to Online Learning in During the COVID-19 Pandemic – Publicly Shared Resources

Country	Educational Institution	CTL	URL
Australia	University of Melbourne	The Williams Centre for Learning Advancement	https://www.unimelb.edu.au/community/working-and-studying-remotely https://fbe.unimelb.edu.au/wcla/services/Resources-to-transition-face-to-face-teaching-online-to-support-our-students
	The University of Sydney	Teaching@Sydney	https://www.sydney.edu.au/education-portfolio/ei/teaching@sydney/getting-students-talking-through-masks-and-mics-active-learning-in-times-of-covid-19/
Austria	University of Vienna	Center for Teaching and Learning	https://ctl.univie.ac.at/en/lehre-im-wintersemester/introduction/
Belgium	Université Catholique de Louvain	Louvain Learning Lab	https://uclouvain.be/fr/etudier/lll/actualites/covid-19-enseigner-a-distance.html
	Katholieke Universiteit Leuven (KU Leuven)	KU Leuven Learning Lab	https://www.kuleuven.be/english/education/leuvenlearninglab
	Université Libre de Bruxelles	Centre d'appui pédagogique	https://actus.ulb.be/fr/actus/faq-covid-19-enseignants-activites-d-enseignement-et-modalites-pratiques-des-examens
Canada	McGill University	Teaching and Learning Services	https://www.mcgill.ca/tls/instructors/class-disruption https://www.mcgill.ca/tls/students
	College Sainte-Anne	Innovation pédagogique	https://innovation.sainteanne.ca/
	Concordia University	Centre for Teaching and Learning	http://www.concordia.ca/ctl/digital-teaching.html http://www.concordia.ca/ctl/students.html
	Université de Sherbrooke	Pôle d'innovation technopédagogique Service de Soutien à la formation	https://www.usherbrooke.ca/poleduc/soutien/?fbclid=IwAR34WCh4gQjqSbpzLD9YHfiTxuc6jUmg_O3B8vHmoQwEv1sPAUxIpbyZuYI https://www.usherbrooke.ca/enseigner/alternatives-au-presentiel/solutions-de-rechange-a-lenseignement-en-presentiel/

	Western University	Center for teaching and learning	https://teaching.uwo.ca/curriculum/supportonline/index.html https://teaching.uwo.ca/elearning/online_course_design/index.html
	Carleton University	Carleton University Online	https://carleton.ca/teachinglearning/course-design-express/
	Université Laval	Bureau de soutien à l'enseignement	https://www.ulaval.ca/covid-19/personnel-enseignant/assurer-en-ligne-la-continuite-dun-cours-en-cas-de-situation-durgence
	Ontario Tech University	Teaching and Learning Centre	https://tlc.ontariotechu.ca/teaching-support/teaching-online.php
	University of Waterloo	Keep Learning	https://uwaterloo.ca/keep-learning/
	University of Calgary	Teaching Continuity Essentials	https://taylorinstitute.ucalgary.ca/teaching-continuity/essentials
	Queen's University	Remote Teaching	https://www.queensu.ca/ctl/educational-technology/remote-instruction
	York University	Course Continuity	https://bold.info.yorku.ca/
	Université d'Ottawa	Teaching and Learning Support Service (TLSS)	https://tlss.uottawa.ca/site/services-tlss
	University of Alberta	Centre for Teaching and Learning	https://blog.ualberta.ca/coming-together-in-learning-to-teach-from-home-c59481edfdfb https://www.ualberta.ca/centre-for-teaching-and-learning/index.html https://www.ualberta.ca/centre-for-teaching-and-learning/teaching-support/learning-environments/remote-teaching/index.html
	Educational Developers Caucus (EDC)	N. A.	https://keepteaching.ca/resources/institutional-level-resources/
	Université de Montréal	Centre de pédagogie universitaire de l'Université de Montréal	https://cpu.umontreal.ca/enseignement/enseigner-a-distance/
Czech Republic	Masaryk University	IT MUNI	https://is.muni.cz/do/mu/samostudium/index_en.html https://it.muni.cz/en/aktuality/general-principles-of-online-synchronous-teaching

Denmark	Aarhus University	Centre for Teaching and Learning	https://medarbejdere.au.dk/en/corona/distance-education/
	University of Southern Denmark	SDU Centre for Teaching and Learning	https://e-learn.sdu.dk/bbcswebdav/courses/E-learn_Support_Center/Nyhedsbrev_2020/Marts2020corona/NewsletterCoronaSpecialEditionFrontpage.pdf https://www.sdu.dk/en/om_sdu/fakulteterne/humaniora/vejledning/studievejledningen+paa+hum/gode_raad_studerende_under_nedlukning
Estonia	University of Tartu	N. A.	https://sisu.ut.ee/eriolukord/english
Finland	University of Helsinki	The Centre for University Teaching and Learning (HYPE)	https://teaching.helsinki.fi/instructions/article/how-can-i-modify-existing-course-or-exam-distance-teaching
France	Sciences Po Paris	N. A.	https://www.sciencespo.fr/enseignants/fr/actualites/ressources-enseigner-distance.html
	Sorbonne Université	Service informatique pour la pédagogie et la recherche (SIPR) Centre d'accompagnement pour la pédagogie et support à l'expérimentation (CAPSULE)	http://www.sorbonne-universite.fr/dossiers/covid-19-nos-engagements/covid-19-assurer-la-continuite-pedagogique-grace-lenseignement-distance http://lutes.upmc.fr/kitead/
	The American Business School of Paris	Academic Affairs	https://www.absparis.org/absparis-covid-19-pandemic/
Hungary	University of Szeged	Online Education	https://u-szeged.hu/english/for-instructors/information-on-online
Ireland	Trinity College Dublin	Academic Practice & E-learning	https://www.tcd.ie/CAPSL/professional-development/adapting_our_teaching/ https://www.tcd.ie/CAPSL/TLAC/
	University College Dublin	UCD Teaching and Learning	https://www.ucd.ie/teaching/resources/technologyenhancedlearning/teachingcontinuitymeasures/
Japan	Kyoto University	The Kyoto University Center for the Promotion of	https://www.highedu.kyoto-u.ac.jp/connect/en/teachingonline/guidances.php

		Excellence in Higher Education	
Japan	Tohoku University	Graduate School of Education	http://www.tohoku.ac.jp/en/events/special_event/webinar_series_2020.html
Lebanon	Lebanese American University (LAU)	Center for Innovative Learning CIL	https://www.lau.edu.lb/about/governance/provost/covid-19/covid-19-crisis-tips-for-students.php https://rise.articulate.com/share/SBaHy3sb17coWGrbjYxmm2gYGyEr3v9K#/
	American University of Beirut (AUB)	Office of Information Technology	https://aub.edu.lb/it/teachingincrisis/Pages/default.aspx
Mexico	Tecnológico de Monterrey (ITESM)	Observatory of Educational Innovation Vicerrectoría Académica y de Innovación Educativa	https://observatory.tec.mx/covid19-free-educational-resources https://innovacioneducativa.tec.mx/continuidad-academica/en/
Netherlands	University of Amsterdam	UvA Teaching and Learning Centre	https://canvas.uva.nl/courses/16651
New Zealand	University of Otago	Higher Education Development Centre	https://www.otago.ac.nz/coronavirus/information-for-staff/otago733882.html
	University of Auckland	Centre for Learning and Research in Higher Education (CLeaR)	https://remotelearning.auckland.ac.nz/
Norway	University of Oslo	LINK- Centre for Learning, Innovation & Academic Development / KURT - Centre for Teaching and Learning in Science	https://www.uio.no/english/services/it/digital-teaching/lecturer/ https://www.uio.no/english/services/it/digital-teaching/student/
	Norwegian University of Science and Technology	Centre for Teaching and Learning	https://innsida.ntnu.no/en/undervisningsstotte
Spain	Universitat Pompeu Fabra	Center for Learning Innovation and Knowledge / Centre per a la Innovació en	https://www.upf.edu/web/factoria/docencia-online

		Aprenentatge i Coneixement	
Sweden	Karolinska Institute	Teaching and Learning	https://staff.ki.se/distance-teaching-and-learning
Switzerland	École Polytechnique Fédérale de Lausanne	EPFL Center for Learning Sciences LEARN	https://www.epfl.ch/education/educational-initiatives/home/
Turkey	Middle East Technical University (METU)	Distance Education Support Site	https://its.metu.edu.tr/uzaktanegitim/en/
United Kingdom	University College London (UCL)	UCL Teaching and Learning Portal	https://www.ucl.ac.uk/teaching-learning/assessments-progression-and-awards-2019-20
	University of Oxford	Centre for Teaching and Learning	https://www.ctl.ox.ac.uk/teaching-remotely
	University of Cambridge	Cambridge Centre for Teaching and Learning	https://www.cctl.cam.ac.uk/teaching-remotely
	University of Glasgow	Learning and Teaching	https://www.gla.ac.uk/myglasgow/anywhere/blendedteaching/?fbclid=IwAR0zg-3C_X5OHterMtsst6rBtdBNqKLFQ8IarB7L4bnSNYk-ipo2gnhGSU8#7:relationship-building
United States of America	Boise State University	Center for Teaching and Learning	https://www.boisestate.edu/ctl/
	Portland Community College	Teaching and Learning Center	https://www.pcc.edu/teaching-learning-center/
	Harvard University	The Derek Bok Center for Teaching and Learning	https://bokcenter.harvard.edu/teaching-remotely
	University of Washington	Center for teaching and learning	https://www.washington.edu/teaching/topics/teaching-remotely/teaching-everywhere/
	Hampshire College	Center for teaching and learning	https://sites.hampshire.edu/ctl/2020/03/23/going-online-in-a-hurry/
	Ohio State University	University Institute for Teaching and Learning (UITL) - Michael V. Drake Institute for Teaching and	https://drakeinstitute.osu.edu/news/2020/03/19/moving-online-now-how-keep-teaching-during-coronavirus https://u.osu.edu/ledohiostate/news/ https://cete.osu.edu/resources/

		Learning LED Research Group - College of Education and Human Ecology Center on Education and Training for Employment Keep Teaching / Office of Distance Education and eLearning	https://keepteaching.osu.edu/
	Boston College	The Center for Teaching Excellence	https://cteresources.bc.edu/documentation/teaching-through-disruption/ https://www.bc.edu/content/bc-web/academics/sites/center-for-teaching-excellence/programs-events/campus-wide-programs/Preparing-For-Fall.html
	Dixie University	Center for teaching and learning	https://ctl.dixie.edu/remote-teaching-resources/
	Central Piedmont Community College	N. A.	https://www.cpcc.edu/faculty-and-staff https://www.cpcc.edu/about-central-piedmont/administrative-offices/college-security-services/emergency-management/coronavirus/teach-remotely
	Indiana University	Keep Teaching IU Center for teaching and learning / Center for Service & Learning	https://kb.iu.edu/d/keep https://ctl.iupui.edu/
	Northern Illinois University	Remote Teaching support	https://www.niu.edu/keepteaching/
	Stanford University	Stanford Center for Teaching and Learning	https://learningconnection.stanford.edu/remotelearning https://teachanywhere.stanford.edu/
	California Institute of Technology (Caltech)	Center for Teaching, Learning & Outreach (CTLO)	http://teach.caltech.edu/online-teaching/course-components

	University of Chicago	Chicago Center for Teaching	https://teaching.uchicago.edu/test-page/
	University of Virginia	Center for Teaching Excellence Teaching Continuity	https://cte.virginia.edu/ https://cte.virginia.edu/blog/2020/03/12/teaching-continuity
	Franklin University	Center for Teaching Excellence	https://www.franklin.edu/coronavirus/students
	San Francisco State University	Keep Teaching and Learning - Faculty Educational Technology Services / Center for Teaching Excellence Keep Teaching and Learning - Students USF TEAch	https://myusf.usfca.edu/keep-teaching/preparation-for-all-faculty https://myusf.usfca.edu/ets https://myusf.usfca.edu/covid/remote/students/fall-2020 https://myusf.usfca.edu/usfteach

For more details: https://docs.google.com/spreadsheets/d/1fqGIyReDOoAu5CQ5sJZTQUmZqcfV-qulCh1mWSCMJxk/edit?usp=sharing

For PDF copies of the CTLs' websites:
https://drive.google.com/drive/folders/1tmjsYi-yjYznn_3wyloIqn04Wi5DcnKE?usp=sharing

Appendix 5 – Ways to Ensure Equity in Education - Publicly Shared Resources

Country	Educational Institution	URL
Australia	University of Melbourne	https://provost.unimelb.edu.au/students-equity https://socialequity.unimelb.edu.au/stories/what-is-social-equity https://about.unimelb.edu.au/newsroom/news/2020/june/university-commits-to-gender-equity-during-covid-19 https://students.unimelb.edu.au/student-support/student-equity-and-disability-support https://students.unimelb.edu.au/student-support/student-equity-and-disability-support/standards
Belgium	Université Libre de Bruxelles	https://actus.ulb.be/fr/actus/faq-covid-19-enseignants-activites-d-enseignement-et-modalites-pratiques-des-examens
Canada	Concordia University	http://www.concordia.ca/ctl/digital-teaching.html
	Educational Developers Caucus (EDC)	https://keepteaching.ca/resources/institutional-level-resources/
	McGill University	https://mcgill.ca/equity/resources/covid-19-best-practices-equitable-inclusive-student-centred-learning
	Ontario Tech University	https://accessibility.ontariotechu.ca/best_practices/universal-design.php https://studentlife.ontariotechu.ca/services/equity-and-inclusion/index.php https://research.ontariotechu.ca/discover-research/public-accountability/diversity-concerns-or-complaints-at-the-university-of-ontario-institute-of-technology.php
	Queen's University	https://www.queensu.ca/ctl/educational-technology/remote-instruction https://www.queensu.ca/atc/
	Université d'Ottawa	https://uottawa.saea-tlss.ca/en/accessibility-accommodations
	University of Alberta	https://www.ualberta.ca/equity-diversity-inclusivity/about/strategic-plan-for-edi/our-edi-principles.html https://blog.ualberta.ca/the-importance-of-addressing-racism-in-the-classroom-a57fd93ea220 https://www.ualberta.ca/centre-for-teaching-and-learning/teaching-support/learning-environments/remote-teaching/preparation/inclusive-teaching-learning.html https://www.ualberta.ca/centre-for-teaching-and-learning/teaching-support/learning-environments/remote-teaching/preparation/edi.html
	University of Waterloo	https://uwaterloo.ca/keep-learning/academic-integrity https://uwaterloo.ca/human-rights-equity-inclusion/equity-intiatives https://uwaterloo.ca/human-rights-equity-inclusion/about https://uwaterloo.ca/human-rights-equity-inclusion/education-and-training-0
	Western University	https://teaching.uwo.ca/elearning/student_assessment/accessible-assessments.html

	York University	https://bold.info.yorku.ca/support-for-students/ https://teachingcommons.yorku.ca/wp-content/uploads/2020/03/Accessibility-Resources-for-Students-in-Online-Learning-March-2020-Accessibility-Services-.pdf
	Carleton University	https://carleton.ca/equity/ https://carleton.ca/pmc/cms-newsletter/covid-19-and-employment/ https://carleton.ca/pmc/2020/bmo-capital-markets-lime-connect-equity-through-education-scholarship/# https://carleton.ca/edc/teachingresources/accessibility/
	Université de Sherbrooke	https://www.usherbrooke.ca/gestion-recherche/equite-diversite-et-inclusion/#c301228-2 https://www.usherbrooke.ca/sciences/faculte/equite-diversite-et-inclusion/#c55508-1
Finland	University of Helsinki	https://teaching.helsinki.fi/instructions/article/special-arrangements
France	Sciences Po Paris	https://www.sciencespo.fr/enseignants/fr/accompagnements/handicap.html
	Sorbonne Université	https://www.sorbonne-universite.fr/dossiers/covid-19-nos-engagements/le-pole-social-de-la-faculte-des-sciences-et-ingenierie-accompagne-la-communaute-etudiante
Ireland	University College Dublin	https://www.ucd.ie/equality/support/mentalhealth/mentalhealthfirstaidcovid19/ https://www.ucd.ie/equality/about/ https://www.ucd.ie/equality/information/race/ https://www.ucd.ie/equality/information/ediduringcovid19/ https://www.ucd.ie/equality/support/supportsforcarers/
Lebanon	American University of Beirut (AUB)	https://aub.edu.lb/it/teachingincrisis/Pages/Accessibility.aspx
New Zeland	University of Auckland	https://remotelearning.auckland.ac.nz/course-content/accessibility/
Turkey	Middle East Technical University (METU)	https://its.metu.edu.tr/uzaktanegitim/en/ https://its.metu.edu.tr/uzaktanegitim/en/DistanceEducationAccessibility.pdf
United Kingdom	University College London (UCL)	https://www.ucl.ac.uk/teaching-learning/publications/2020/apr/inclusive-teaching-learning-and-assessment https://www.ucl.ac.uk/teaching-learning/sites/teaching-learning/files/bame_awarding_gap_toolkit_2020.pdf
	University of Cambridge	https://www.cctl.cam.ac.uk/files/cctl_moving_lectures_online_v1.0.pdf https://www.cctl.cam.ac.uk/files/cctl_moving_classes_and_seminars_online_v1.0.pdf
	University of Glasgow	https://www.gla.ac.uk/myglasgow/students/newsletter/stories/headline_727941_en.html https://www.gla.ac.uk/legal/accessibility/

		https://www.gla.ac.uk/myglasgow/humanresources/equalitydiversity/#
	University of Oxford	https://academic.admin.ox.ac.uk/teaching-and-learning-reasonable-adjustments https://www.ctl.ox.ac.uk/tutorials
United States of America	Boise State University	https://www.boisestate.edu/ctl/inclusive-excellence/introduction-to-accessibility-and-universal-design-for-learning/ https://www.boisestate.edu/ctl/inclusive-excellence/
	Boston College	http://cteresources.bc.edu/documentation/emergency-remote-instruction/accessibility/ http://cteresources.bc.edu/documentation/universal-design-for-learning/ http://cteresources.bc.edu/documentation/universal-design-for-learning/implement-udl-representation/
	California Institute of Technology (Caltech)	http://teach.caltech.edu/online-teaching/accessibility-inclusion https://www.mapping-access.com/blog-1/2020/3/10/accessible-teaching-in-the-time-of-covid-19 https://www.washington.edu/doit/20-tips-teaching-accessible-online-course https://www.chronicle.com/article/how-to-make-your-teaching-more-inclusive/ https://www.chronicle.com/article/8-ways-to-be-more-inclusive-in-your-zoom-teaching/
	Central Piedmont Community College	https://www.cpcc.edu/academics/academic-resources/disability-services
	Harvard University	https://bokcenter.harvard.edu/remote-equity-access https://cdn2.hubspot.net/hubfs/3409306/Best-Practices-in-Online-Learning-for-At-Risk-Students.pdf http://www.cast.org/our-work/about-udl.html#.Xxrx7ShKjct
	Indiana University	https://keepteaching.iu.edu/resources/accessibility/quick-tips.html https://iu.pressbooks.pub/semesterchecklist/chapter/accommodations/ https://kb.iu.edu/d/aoee
	Northern Illinois University	https://www.niu.edu/keepteaching/strategies/index.shtml
	Ohio State University	https://uitl.osu.edu/sites/default/files/2020/03/uitl_remote_teaching_assessments_2.pdf https://drakeinstitute.osu.edu/instructor-support/teaching-racial-justice https://drakeinstitute.osu.edu/instructor-support/inclusive-teaching https://cete.osu.edu/2020/06/10/togetheragainstracism-a-statement-against-systemic-racism-discrimination-from-the-center-on-education-and-training-for-employment/ https://keepteaching.osu.edu/assessments
	Portland Community College	https://www.chronicle.com/interactives/advice-online-teaching https://www.pcc.edu/coronavirus/covid-19-diversity-equity-and-inclusion-dei-resource-list/

		https://www.pcc.edu/instructional-support/accessibility/ https://www.youtube.com/watch?v=AgmO49t0BTY&feature=youtu.be
	San Francisco State University	https://myusf.usfca.edu/usfteach/teaching/accessible-documents https://myusf.usfca.edu/usfteach/engaging/captioned-video https://myusf.usfca.edu/covid/remote/faculty/teaching-students-abroad https://myusf.usfca.edu/ets/ets-training
	Stanford University	https://teachanywhere.stanford.edu/accessibility-considerations-online-teaching
	University of Chicago	https://cte.rice.edu/blogarchive/2020/3/13/inclusion-equity-and-access-while-teaching-remotely https://d3qi0qp55mx5f5.cloudfront.net/teaching/i/basic_pages_sidebar_downloads/Considerations_for_Inclusive_Teaching_in_Remote_Environments.pdf?mtime=1591126324
	University of Virginia	https://www.youtube.com/watch?v=wYPtxeHGZVI https://cte.virginia.edu/sites/cte.virginia.edu/files/Closing%20the%20Semester%20with%20Equity%20in%20Mind.pdf https://teachingcontinuity.virginia.edu/instructional-resources-accessibility https://teachingcontinuity.virginia.edu/inclusive-virtual-teaching http://digitalaccessibility.vpit.virginia.edu/ http://digitalaccessibility.vpit.virginia.edu/wddam.php
	University of Washington	https://www.washington.edu/teaching/topics/teaching-remotely/get-started/ https://www.washington.edu/teaching/topics/teaching-remotely/faq/#accordion2_tab5 https://www.washington.edu/raceequity/covid-19-student-resources/

For more details: https://docs.google.com/spreadsheets/d/1DG1xmVpcNRi56TRYzislnhApAT5bvIA-UiktnGGccjA/edit?usp=sharing