AUTHOR:
Paul Dankers[1] (iD)
Juliet Stoltenkamp[1] (iD)

AFFILIATION:
[1]University of the Western Cape, South Africa

Advances made by the University of the Western Cape in the support of remote online teaching and learning for student success and access

Abstract

During the COVID-19 pandemic, ongoing advances were made by higher education institutions (HEIs) to support remote online teaching and learning for student success and access, which are increasing areas of research. The major objective of this paper is to address the shift to remote teaching and learning practices that Covid precipitated in higher education. We report on literature that captures the ongoing shift to remote teaching and learning practices. The response of the University of the Western Cape (UWC) to the crisis of the pandemic will be highlighted. Various themes related to the pedagogical value of emergency remote teaching (ERT), online learning, and continual post-pandemic support are discussed. We examine how challenges presented new opportunities for curriculum innovation and transformation at the UWC. The focus is the importance of a continual professional academic support structure and post-covid awareness campaigns in order to sustain fully online and hybrid teaching and learning approaches. Recommendations highlight that departments across faculties need to focus on training and support with regard to the attainment and effective application of eSkills and eTools; and that there is a need to intensify this, especially as part of the broader curriculum transformation agenda. More research that focuses on ongoing advances in the support of remote online teaching and learning for student success and access during a pandemic is necessary.

Keywords*: access, emergency remote teaching and learning, innovation, student success, transformation*

1. Introduction

The University of the Western Cape (UWC) has made advances in promoting transformation and favourable student outcomes in lieu of the unique challenges that confronted the university student at the onset of the COVID-19 pandemic in 2020. The reality is that many students and lecturers faced the lack of computer literacy, online resources, lack of proper infrastructures, reliable

electricity supply, lack of data and access to laptops and internet connections. These challenges highlighted the type of conversations that should take place to fast track processes and provide greater online resources and support for students and teaching staff. In order to develop a platform for improved computer literacy, the UWC improved its blended approach to teaching, and to train students and teaching staff in the use of eTools in the institutional Learning Management System (LMS), iKamva. These dynamics precipitated much concern on how to create fair technological opportunities for everyone, provide access to ICT, narrow the digital divide, and provide a cost-effective method of providing support to students. This has been done through increasing remote online teaching and learning to promote student success and access. In order to see transformation through the lenses of student achievement, the researchers had to conceptualise transformation. Likewise we identified how proactive remote teaching and learning support measures that had been put in place had become practice at the UWC. In addition, key concepts in remote online teaching were explored within the lenses of student achievements, particularly those aspects that hindered the delivery of fully online and hybrid teaching and learning approaches.

Manda and Backhouse (2018) claim that South Africa is one of the leading African countries to have identified digital transformation as a priority. The South African government invested in skills and education via three specific agendas to convert South Africa into an inclusive, digital society. The agendas included the digital transformation of government, digital access, and digital inclusion. Manda and Backhouse (2018) conclude that even though the agendas and policies are progressive, South Africa still faces significant challenges in implementing the agendas that focus on student success and access.

2.   Integrative Literature Review: Themes related to the pedagogical value of emergency remote teaching (ERT)

Snyder (2019) suggests that using literature reviews as a research methodology enables researchers to build on existing knowledge. According to Snyder (2019), the different approaches to doing a literature review depend on the purpose of the review and can be categorised as systematic, semi-systematic or integrative. In this paper, we use an integrative approach. Integrative literature reviews are usually used with different outcomes in mind. Typically, integrative reviews, "should result in the advancement of knowledge and theoretical frameworks" (Snyder, 2019: 336) instead of merely being an outline or explanation of a topic. The literature review and practices perpetuated at the UWC was used to answer our critical questions in this research: How did the COVID-19 pandemic prompt HEIs, especially the UWC, to reimagine teaching and learning, student support, and staff matters across faculties? How did the pandemic provide a new lens for HEIs to include innovative education and communication technologies in the pursuit of student success and access? In these reviews' themes are identified and organised in relation to the pedagogical value of ERT, in the way, and similarly how they were adopted in different departments across faculties at the UWC.

Given the rapid expansion of technology, accelerated teaching and learning encouraged by the adoption of remote pedagogies, Chisadza *et al.* (2021) predict that online learning will probably become the new norm for HEIs in South Africa. However, these authors identify weak internet access as a major reason for students' poor performance. They go on to suggest that HEIs must take cognizance of "the *inequality* dynamics in the country" (Chisadza *et al*., 2021: 122). Difficulty in obtaining internet access and the *unequal* distribution of infrastructure will probably lead to present *inequalities* being exacerbated rather than reduced. Social

inequalities that prevent access to higher education need to be considered or factored in post-pandemic if HEIs are going to continue with remote online pedagogies. Motala and Menon (2020: 90) agree it is the COVID-19 pandemic that increased social exclusion and emphasised *inequities*, as well as created more barriers to learning. Motala and Menon (2020) acknowledge that progress has been made in the adoption of emergency online pedagogies ,but caution HEIs to reconsider how to invest in teaching and learning. A decision should be made on whether to invest in technologies or a completely new mode of delivery. Different key skills that include digital capabilities will be critical in the future (Kopp, Gröblinger & Adams, 2019). The conclusion reached from the above is that *inequitable* distribution of digital infrastructure was noticeable during the pandemic, but is still of great concern after the pandemic. *The **first** **theme** to emerge from the reviews is the inequality factor that the 'new normal' highlighted.*

At the UWC, the emphasis before COVID-19 was on design, using the ADDIE model linked to stages of e-moderation. This focus enabled academic staff to design their online environments and platforms to facilitate using blended e-pedagogies (Stoltenkamp & Dankers, 2022). Within the South African context, there seems to be an increased willingness of academic facilitators to adopt blended and distance pedagogies. Lecturers use "structural enablements" to experiment with "new pedagogical practices and reflect on old practices more deeply and critically" (Padayachee & Dison, 2021: 49). However, Padayachee and Dison (2021: 49) question whether these new practices will be feasible in the long term, even after the pandemic. What is of concern is that lecturers are hesitant to engage with blended and online pedagogies. In researching the value of supporting technologies that drive *curriculum*, Khoza and Mpungose (2020) conclude that the five principles of transformation, namely reflection, translation, rotation, enlargement, and reduction drive digitalised *curriculum* transformation. In fact, Khoza and Mpungose note that "the principles of transformation that promote the use of technology in education" (2020: 4) help academics as they embrace the use of technology. Their reflection on their use of technologies also changes their ideologies as they transform the way they teach. On the basis of these findings, researchers conclude that if educators ponder on their practices and transform their teaching style to include technology (like an existing LMS), they support the drive to digitise the *curriculum*. In addition, Khoza and Mpungose (2020) believe that if HEIs were to set up technology centres for lecturers and students to drive a digitalised *curriculum*, it would enable academics to focus on teaching and learning as well as their research. Further studies on *curriculum* change during the pandemic conducted by Patrick, Abiolu and Abiolu (2021) assessed the implications of *curriculum* change and delivery options on HEIs. They used the theory of localisation to discover the peculiarities in the South African education system, especially in the present socioeconomic, cultural and political setting. Patrick *et al*. (2021) note that the change in the mode of delivery brought about an increase in the adoption of new measures and alternatives for the online transfer of learning materials. However, this change of delivery mode had far-reaching consequences for *curriculum* adjustment, as well as students and lecturers. These authors highlight that socio-economic, cultural, and political configurations are unavoidable considerations when changes in the *curriculum* and mode of delivery are undertaken. *The **second theme** to emerge is the emphasis on the shift from design to supporting technology that drives curriculum design in online teaching and learning*.

In characterising the effects of the digital divide in South Africa, Du Preez and Le Grange (2020: 91) stress that the "digital divide deprives certain students of *epistemological* access". In addition, unequal access to technologies, data and connectivity will continue to be a problem

in South Africa even after the ERT practices brought about by the COVID-19 pandemic. Du Preez and Le Grange (2020: 95-96) stress that a disparity or gap exists between "knowledge consumers and knowledge producers". The gap is the result of inequalities in the socio-economic sphere as well as inequalities of access and the acquisition of the necessary skills. In addition, those who have access, skills and training will probably contribute to knowledge production, whereas those who do not have access will not (Ndlazi & Allsobrook, 2020). For Du Preez and Le Grange (2020: 99), "context impacts on *epistemological* access", meaning that knowledge production is often related to socio-economic status. This is because limited access to technologies and online learning are more likely to occur in poor communities than in middle-class communities that have access to a range of resources. These authors stress that an extended notion of emergency remote teaching/learning is necessary to guarantee *epistemological* access (Du Preez & Le Grange, 2020: 100). Ensuring this kind of access means that lecturers will need to have not only technical and pedagogical knowledge and competencies, but also an appreciation of the learning contexts of students (Du Preez & Le Grange, 2020: 100). Dlamini and Ndzinisa (2020) agree and suggest that "emergency remote teaching must be contextualised instead of being prescribed". This is because many lecturers were not sufficiently prepared for the change in the mode of delivery during the pandemic. Such a lack of preparedness could increase "systemic inequalities and *epistemic* injustice" (Dlamini & Ndzinisa, 2020: 62). *The **third theme** to emerge is the deprivation of epistemological access and lack of training available for staff and students.*

In discussing higher education in South Africa during the pandemic, Badat (2020: 28) suggests that although access to technology has improved to a certain extent and student numbers have increased, participation in online learning is low and there is still a high drop-out rate of students in various race groups (Badat, 2020: 28). Badat (2020: 31) concludes that the norm after the pandemic could have a negative impact on student enrolment, permanent and temporary staff appointments, shrinking learning opportunities, and research output. Institutional preparedness and knowledge and usage of technologies are essential. The pandemic has afforded South African HEIs an opportunity to close the digital divide by ensuring that students are technologically literate and are given the tools (data and computers) to learn online. HEIs should use the learning opportunities provided by the COVID-19 pandemic to prepare their institutions, staff and students for future problems. In order to achieve such preparedness, HEIs should invest in ICT infrastructure sooner rather than later because the future of the pandemic is not known. It is generally thought that investment in technology will help to mitigate the negative effects the COVID-19 pandemic has had on the higher education landscape (Shava, 2022; Mawere *et al.*, 2020). Mawere *et al*. (2020) see the need for HEIs to become leaders in digital trends and disruptive technologies to allow them to compete both locally and globally. In promoting this paradigm shift in education post-pandemic Mbhiza (2021) agrees that there needs to be a paradigm shift in education post-COVID-19 and that alternative ways of teaching, learning and doing research must be implemented. This author foresees that traditional methods will be incompatible with those in the "post-COVID-19 era" (Mbhiza, 2021: 283). It is imperative for lecturers to use their experience of online teaching and learning to inform their future efforts to encourage learners to be self-regulating learners (Mbhiza, 2021: 286). One cannot conceptualise what the future of teaching and learning practices will look like post-COVID. However, Ndlovu, Mbatha and Msiza (2020) look forward to an imagined future by exploring how this might be shaped after the pandemic. The authors suggest that online learning and teaching should be part of the strategic plans of HEIs in the future. In addition, they imagine that future programmes offered at HEIs will need to be

collaborative and interdisciplinary. Undoubtedly the pandemic has brought about a shift in teaching and learning practices and highlighted many inequalities. In this regard Ndlovu *et al*. (2020: 49) caution that the divide might widen post-COVID, and that HEIs will need to be flexible and encourage collaboration. *The **fourth theme** that emerged is the changing landscape of education that necessitates high-quality ICT infrastructure to ensure that teaching and learning will not suffer in the post-COVID-19 era*.

3.   ERT practices implemented at the UWC

In the next sections, we describe the UWC's emergency and remote learning and teaching practices adopted by departments across faculties during the COVID-19 pandemic. We also describe the continual professional academic support provided and highlight campaigns that promote awareness to sustain fully online and hybrid teaching and learning approaches. In addition, we identify patterns that emerge related to data access, digital competencies, digital tools, the transformation of the curriculum, and pedagogic shifts in teaching styles and methods adopted at the UWC.

With the aforementioned in mind, we associate the four themes that emerged from the reviews with the UWC's ERT practices, namely the inequality factor that the 'new normal' highlighted; the emphasis on the shift from design to supporting technology that drives curriculum design in online teaching and learning; the deprivation of epistemological access and lack of training to staff and students; and the changing landscape of education that necessitates a high-quality ICT infrastructure to ensure that teaching and learning will not suffer in the post-COVID-19 era.

The following sections will identify the themes and associate them with practices employed within different departments across faculties at the UWC that who participated in and utilised ERT practices in support of lecturer and student development. Prior to the pandemic, the UWC's Centre for Innovative Education and Communication Technologies (CIECT) contributed to enhancing teaching, especially online teaching, learning and assessment practices for both blended and distance delivery modes. By ensuring alignment of outcomes, course content, assessment tools and the selection of relevant eTools that support course design circumvented any kind of inequality that discouraged student access and success.

4.   The first theme: Inequality factor that the 'new normal' highlighted

To circumvent any form of inequality caused by the pandemic, the UWC placed high value on student support. With regard to student support, the Centre for Student Support Services (CSSS) team collaborated with the CIECT to create online environments. Online training sessions and consultations familiarised CSSS facilitators with content creation, assessment and communication activities on the online platform, iKamva. Students were added to these online environments and were able to access the resources. The interactive online environments that were created included the following: Learning Support 2021; Office for Academic Support (OAS) the Learning Hub 2021; the Office of Student Development (OSD) Student Orientation 2021; Graduate Development Programme (GDP) 2021. Embedded in these environments were multimedia components and documentation. Learning content was structured and shared in course resources and students' lessons pages. Important videos and related presentations that address various topics are embedded in the online spaces that are easily accessible by students.

To prevent inequality patterns to emerge that are related to data access, the UWC's departments across faculties were encouraged to use online resources by conducting 'live' online sessions via the meetings tools facility in the LMS. The meeting tool is effective, because students can join a class by connecting through the UWC's virtual private network (VPN), which does not use any data. During the class students can unmute themselves and ask the lecturer questions, which allows for an interactive online engagement in real-time. The meetings were recorded so that students can watch the lecture afterwards and reinforce their learning. The online test and group assignment submission environment allowed students to engage in an online test which drew in questions from various question banks. Multiple-choice questions were aligned to the topics presented during the two-week period. At the end of this teaching block, students submitted group assignments. These were checked for plagiarism via Turnitin, especially since the module focused on research and writing. Further student involvement was achieved as students engaged in a peer evaluation activity and rated the group participation. In addition, a lecturer teaching English Home Language made use of social learning via WhatsApp and iKamva to support students. This format of learning embraced the UWC's #NoStudentWillBeLeftBehind campaign. The lecturer scheduled synchronous meeting times for each of his eleven groups of students. Information was shared with the students who had challenges connecting to the Internet and those who had no devices.

5. Second theme: Emphasis on the shift from design to supporting technology that drives curriculum design in online teaching and learning

Different faculties at the UWC adopted a blended learning approach with regard to planning, design, development, prior to and during the pandemic. As many as 90 lecturers created online modules on iKamva for the 2020 academic year. They made use of various eTools for content creation, communication and assessment, and included the integration of Turnitin (Tii). They also created structured online environments to provide students with relevant interactive learning material such as videos, PowerPoint presentations, articles and documents. 'Lessons eTool' is used to present content in an interactive manner by embedding presentations, videos, and other learning material. One lecturer created an 'online reading corner', which was aimed at motivating students to read pieces of literature and share their reactions in a discussion forum. Lecturers engaged in online meetings with their students, using various online meeting applications (BBB, Zoom, and Google Meet). Students were expected to engage in weekly tasks which were designed using the Tests and Quizzes eTool. These tasks included different question types such as True-and-False, Short Answer and Multiple-Choice Questions (MCQs). Formative tasks were used as a form of consolidation of course content, as well as a space for reflection and goal setting. In addition, these tasks assisted not only with reinforcement, revision, and preparation for examinations, but also with their training as educators. 'Take-home' assessments were set upwhereby students needed to submit a research proposal. Rubrics that outlined the assessment criteria were shared with students. These assessments were placed on Tii platform on iKamva and students were expected to submit their assignments on the same platform prior to their final online submission. The students were given sufficient time to submit and edit for re-submission purposes. As a means of reflection, students were required to complete course evaluations (surveys shared via iKamva), which provided feedback of lecturers' teaching approaches, and students' learning and progress.

6. Third theme: Deprivation of epistemological access and lack of training to staff and students

This aspect that emerged from our reviews is that regular in-service training of teaching staff and administrators to increase understanding of pedagogical issues and digital platforms is necessary to empower staff and students (Shava, 2022: 87). By increasing the skills sets of both students and lecturers, the gap in the digital divide can be bridged. In addition, the implementation of a high-quality ICT infrastructure ensures that teaching and learning will continue to improve, even post-COVID-19 and regardless of the mode of delivery. To corroborate our findings, we explored the UWC's current infrastructure that prevented the deprivation of epistemological access to academic staff and students. The UWC's Center for Innovative Education and Communication Technologies team (CIECT) designed and developed an academic digital literacy programme to ascertain the technological skill levels of students. The team collaborated with departments across faculties to identify student needs and a programme is offered over a semester to students of participating departments in different faculties. Early in 2020, the UWC's digital literacy programme assessments were conducted via the LMS. Since the assessment was accessed via smartphones, some students could not participate because of device and data challenges. Even though the UWC made provision for data, it still remained a salient problem at South African universities. Most of the deficiencies such as epistemological access and lack of training to staff and students were coordinated by the CIECT. Lecturers engaged with the CIECT training team to design structured, blended and learning experiences. These lecturers embedded learning materials, simulations, worksheets, and activities in their online environments to enhance their teaching practice. They also used a variety of teaching applications such as narrated PowerPoints, documents, WhatsApp, Google Meet, Zoom, Cmap software, and learning simulations to enhance the student learning experience. A lecturer in one faculty created a structured online module for second-year students in collaboration with faculty tutors. Pre-recorded videos (structured presentations) as well as tutorials, practical exercises and solutions were uploaded on the 'Course Resources' eTool. Often in collaboration with the CIECT team, lecturers were able to attend online eTools workshops and one-on-one consultations to design and develop online environments. During these sessions, lecturers were introduced to the use of the institutional LMS, iKamva, Personal Learning Environments (PLEs), Turnitin (Tii) as well as Google Applications (GAPP's). The UWC's LMS 'Lessons eTool' allowed for the embedding of multimedia learning material. Specific multimedia learning materials were developed and embedded in online environments, enabling students to engage with course content from any geographical setting via their mobile devices.

Lecturers were taught how to structure their own online environments, making use of the 'Lessons eTool' to share relevant learning materials that included podcasts and narrated presentations. The lecturers developed 'ePreps' that students submitted online before tutorial classes. This preparation enabled tutors to address specific problem areas during online tutorials. Furthermore, Turnitin integration on the 'Assignment eTool' was enabled to allow the written pieces to be checked for plagiarism. Lecturers, tutors and students made use of chat rooms on iKamva for tutorials and consultations.

The CIECT team engaged in various sessions with the lecturers and offered departmental training and presentations to lecturers on the effective selection of eTools; the design and development of interactive online environments aligned to their specific module learning outcomes. An example of an interactive online environment was created within the UWC's

Dentistry Faculty. This module introduced the clinical discipline of Dentistry, as well as concepts of academic literacy and laboratory-based teaching. The lecturers created a concept map highlighting the learning units and key concepts of Clinical Dentistry. The concept map was embedded in the course outline eTool on iKamva. An interactive module guide highlighted the organisation and administration of the module. Lecturers provided a 'one-stop' information guide which students were required to read prior to attending classes. The interactive guide included aspects pertaining to prescribed learning materials, lecture schedules and attendance, graduate attributes, assessment strategies, clinical dentistry teaching and student support methods. This resource was a quick reference and reminder of the module organisation.

The CIECT also assisted lecturers in developing an interactive analytic and the critical thinking module that focused on design, development and structuring content. The lecturers engaged with the CIECT team to assist with the use and application of the lessons, the discussion forum, and tests and quizzes eTools. The lecturers used the teaching guides and online module exemplar shared by the CIECT as a guide to develop a first-year module online. This module consisted of an orientation lesson and familiarised students with the important processes related to the course, including a course outline, assessment and etiquette policies, reading instructions, and appropriate communication channels to engage lecturer and peers as they embarked on studies.

7. Fourth theme: Changing the landscape of education that necessitates a high-quality ICT infrastructure to ensure that teaching and learning will not suffer in a post-COVID-19 era

To highlight the changing landscape of education, by the implementation of a high-quality ICT infrastructure, particularly the use of the document camera, a high-quality tool at the UWC, I would like to present the following case applied by a Senior Technical Officer at the Department of Physics and Astronomy at the UWC. The officer created a seamless movement between Whiteboard, iKamva and presentations using a hybrid teaching approach with the use of a document camera. The lecturer downloaded the Sphere2 software that accompanies the document camera. This enabled him to project objects and windows side by side (e.g. live video and static content displayed side by side). The lecturer also made use of a physical whiteboard and placed it on the desk in the venue to project learning material, and enlarge elements like equations to improve visibility. The lecturer was able to create seamless movement between platforms and presentations, such as between iKamva, a PowerPoint presentation and the document camera, allowing him to explain complex concepts, and record entire lectures and embed them on iKamva. Students are then able to retrieve recordings. The document camera can project demonstrations and zoom into real-world objects and enable many more teaching innovations. The CIECT offers continuous training and exploration to this new teaching approach. The aforementioned bears scrutiny of Motala and Menon's (2020: 93) observation that HEIs need to re-evaluate their teaching and learning practices and consider investing in technology, to support the new mode of delivery. It seems inevitable that ERT modes will continue even after the pandemic, and it would be wise for HEIs that if educators reflect on their practices and refresh these by transforming their teaching styles using existing technology, they would be supporting the drive towards a digitalised curriculum.

To demonstrate hybrid teaching systems to faculties at the UWC, the CIECT's Audio-Visual Services (AVS) team assisted in how to conduct online course orientation by making

use of the document camera. The course online orientation was streamed in different venues with Google Meet, enabling more than 50 students to log into the sessions from various geographical settings. Lecturers introduced themselves and gave a breakdown of the course. A pre-recorded message from the dean was played and students were able to engage with the lecturers. During the pandemic some lecturers adopted a hybrid teaching approach by going to campus and teaching in the physical venue using the document camera while students logged in remotely. This enabled all students to see and hear the presenters, view presentations, listen to pre-recorded messages, and engage with the lecturers. The AVS Team were present to address the technical set-up, monitor the orientation session, and facilitate technical aspects of the sessions.

More innovative approaches (affordances with high-quality ICT infrastructure) are taken by lecturers particularly in the Math Education Department who make use of external tools, such as GeoGebra (https://www.geogebra.org). The tool is integrated into the iKamva lessons tool and allows students to practise graphs, geometry, and 3D illustrations. Students were able to download the programme onto their own laptops or PCs and as an App on their smartphones. The benefits of using this tool were numerous, as learning was made more meaningful when concepts were visualised in real time. Short tests enabled students to assess and reinforce learning as they received their scores immediately; they were also able to engage repeatedly in their self-assessment tests.

The engagement of lecturers with the CIECT team to adopt the changing landscape of education that necessitates a high-quality ICT infrastructure post-COVID-19 era validates a theme that emerged in our reviews. Lecturers are willing to engage with blended and online pedagogies, and lecturers used their new-found knowledge to experiment with new technologies and reflect on their traditional teaching practices during the pandemic (see Padayachee & Dison, 2021).

8. Concluding remarks

The major objectives of this paper were accomplished as the researchers identified several themes in teaching learning practices precipitated by the COVID19 pandemic. We identified how the UWC responded proactively to the shift in ERT, specifically in terms of providing an ongoing professional academic support structure. The following major themes emerged which I would like to reiterate. Firstly, the inequitable distribution of digital infrastructure is noticeable and marked the pandemic, which is still of great concern. There was a hesitancy on lecturers' part to engage with blended and online pedagogies prior to the pandemic and is still of great concern. It was noticed that curriculum change in HEIs is incumbent of socio-economic, cultural and political configurations. Most of the literature consulted in this research confirms that even during the pandemic education is still deeply embedded in inequity, inequality and social constructs and the digital divide still deprives certain students of epistemological access. Lastly, high-quality ICT infrastructure will ensure that teaching and learning continues in the post-COVID-19 era, regardless of whether it is done remotely or face-to-face.

In this paper we set out to answer questions and confirmed that the pandemic prompted HEIs, especially the UWC, to reimagine teaching and learning, student support, and staff matters across faculties to provide a new lens for HEIs to expand their view of student success and access in relation to the new challenges presented by a pandemic, and provided a new lens for HEIs to include innovative education and communication technologies in the

pursuit of student advancement. More research that focuses on ongoing advances in support of remote online teaching and learning for student development during a pandemic that have an impact is necessary. This then leaves us with one last question: How can HEIs create equitable remote teaching and learning strategies post-pandemic to ensure student success and access?

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