

Impact of Covid-19 Pandemic on Online Teaching and Learning in Higher Education

R. Kamerika
Faculty of Education
University of Namibia
Namibia

Abstract

Higher education in many countries around the globe has been directly affected by the untimely reality and slow response by the education sectors amid the new Covid-19 pandemic. There is pressure for all Universities to rigorously use digital technology in order to switch over to online programs through first a blended approach rather than fully online. To this end, some higher education institutions have done little to ensure that the academic calendar is not lost or affected by the pandemic. Although, the test brought by the pandemic is so massive, this should be seen as an opportunity for the leadership to readjust and embrace digital technology within the confinement of their academic programs. The institutions need to come up with drastic measures to mitigate the profound challenges of the pandemic on higher education as faced by its leadership. These measures if promptly addressed could avoid compromising the quality of teaching and learning to certain extent. Thus, this paper is aimed at outlining some of the opportunities, challenges and solutions as derived from the pandemic infection, social restriction threats or lockdown regulations that could help the institutions taking full advantage of digital technology in line with their strategic imperatives.

Keywords: Higher Education, University, Leadership, Crisis, Technology, Teaching & Learning, Covid-19.

1. Introduction

The outbreak of the novel Coronavirus Disease 2019 (Covid-19) in China became primetime news in Africa as the plight of its international students in Wuhan where it began took center stage. The concerns globally focused primarily on the disruption that the pandemic would bring to student flows and its economic impact on their higher education systems. Efforts to prevent the spread of the virus ranged from extending or postponing academic terms (Tamrat & Teferra, 2020). As lockdowns were imposed by different countries to contain the spread of the novel coronavirus, education became one of the worst hit social sectors. It became clear that the impact of the pandemic may be much longer than expected as management, academic leadership and educators scrambled to address the problem (Malik, 2020).



Universities across the globe have cancelled in person classes and switched to teaching their courses online, as the battle against the novel coronavirus intensifies (Abdalla, 2020). Invariably, institutions have been advised to shift to online modalities of educational delivery. Shifting to an online modality in response to the new reality may not be easy in Africa, where inadequate ICT access, capacity and systems are evident. However, the limitations have different dimensions including structural, economic, social and technical (Tamrat & Teferra, 2020). As coronavirus containment measures spread in South Asia, for example, Universities in countries such as India, Pakistan and Afghanistan are finding that they are ill-prepared for online learning or remote classes as their campuses close and their students return home (Khan, Niazi & Saif, 2020).

The pandemic outbreak and the subsequent lockdown have necessitated a rapid move to online learning. The reality is that some higher education institutions have not even completed registration and orientation of first-year students, and other academic-related activities, owing to student protests and other administrative issues regarding admissions, timetables and program alignment (Mbodila, 2020). But the shift is not always easy. Shifting from face-to-face teacher training and conventional classrooms to computer-based education in a virtual classroom makes the learning experience totally different for many students (Khan, Niazi & Saif, 2020). However, the people are still keen to learn and teach. The restrictions due to the pandemic have temporarily and abruptly closed down most of the Universities, compelling them to (re)think how to use their existing platforms and find new and innovative solutions to continue with teaching and learning (Mandal, 2020).

Ries & Wagner (2020) confirms that the news underscores just how upending the coronavirus has been to the reliable beats of higher education, where institutions are facing once unimaginable changes to their ways of life. With classes moved online, spring break cancelled, summer jobs furloughed and commencement ceremonies postponed, students remained largely hopeful that the fall would bring an end to the uncertainty. However, the Universities those were imparting online education before the spread of Covid-19 have proved to be successful, having developed online and distance education systems long before the spread of the pandemic and subsequent closure of the Universities (Khan, Niazi & Saif, 2020).

Some Universities are navigating a profoundly uncertain period. In order to adapt to a shift from predominantly on-campus, contact teaching, to a fully online delivery mode, it recognizes they need to rapidly generate pragmatic solutions for the complex challenges faced by their diverse student body and other stakeholders. To do this, they are maintaining focus on two overriding priorities: ensuring that students can successfully complete their academic year and ensuring the sustainability of our institution (Schoonwinkel, Van der Merwe & De Klerk, 2020). On the other hand, other Universities slowly recovering from decades of civil war have now resort to online teaching to ensure the continuation of teaching and learning in an age of Covid-19. It's not only the higher education sector that this pandemic has disrupted but the entire education system (White & Lee, 2020). This complete shutdown of mobility has exposed an existing reality. Overnight, courses have moved massively and exclusively online and international students are continuing to study while sitting at home in their own countries (White & Lee, 2020).

Hunter & Sparnon (2020) stresses the crisis has broken down many of the societal, institutional, organizational and personal barriers that have often precluded effective cooperation. Social distancing and self-isolation restrictions have forced people to work to ensure that they don't become professionally and intellectually isolated. Mandal (2020) reported that even though it is temporary, this ongoing shift from a physical to a digital mode of academic intellectual transactions in many higher education institutions is remarkable and shows why there is a dire need to invest in developing digital technology-mediated platforms and to train educators to support remote teaching and learning during and beyond emergency situations such as the Covid-19 crisis. Jappie (2020) confirms that this crisis presents an unprecedented occasion for higher education to evaluate its preparedness for new changes. It has also galvanized us into reflection and action, for instance, regarding how we can tap into digital technologies and other creative ways of better serving the needs of higher education and addressing talent disruptors like Covid-19.

2. Impact of Covid-19 Pandemic on Online Teaching and Learning

The pandemic lockdown and social confinement measures have an enormous impact on higher education. Higher education has been disrupted as never before, but the fact that the campuses are physically closed doesn't mean that these institutions have stopped functioning. On the contrary, faced with multiple challenges, they have had to respond quickly and find new solutions to previously unknown problems and new ways in which to continue teaching, conducting research and serving society (Marinoni & Van't Land, 2020).

It is important for higher education to consider the cultural and environmental assumptions underpinning the construct of digital natives. The reality is that the majority of our first-year students are in fact digital strangers and they face serious challenges in transiting to computer-based technologies and any type of online-based technology for teaching and learning (Mbodila, 2020).

Consequently, this has had a negative impact on their successful transition to University study as it involves a complex process that requires new skills acquisition, new technology usage, and new ways of learning and adjustment to a different social environment (Mbodila, 2020).

Han (2020) found that one of China's top Universities conducted a survey which revealed that online teaching was not popular before the epidemic. When a campus closed, neither teachers nor students were ready for online teaching. Universities need to develop a platform to perform online teaching, which requires a lot of expertise and money. Han (2020) confirms that educators feel frustrated. They need to redesign their teaching plans and learn online teaching techniques. This could double; triple and even quadruple their work. Also, the students feel bored. Their online courses are not as lively as offline classrooms and it is harder to focus in an online classroom. That's why the South China Morning Post (2020) Hong Kong's public Universities introduce a plan to conduct final exams online – some in full and some partially – amid continued uncertainty over Covid-19, even as students continue to push for alternatives they see as more fair given the difficulties of online learning. Many students have been learning online since the coronavirus pandemic forced the suspension of face-to-face classes.

According to UNESCO, many African students are experiencing disruption in their studies due to the closure of higher education institutions. The danger of contamination has triggered institutions to move their courses online. However, going online is not that simple on a continent where only 24% of the population has access to the internet, and poor connectivity, exorbitant costs and frequent power interruptions are serious challenges (Tamrat & Teferra, 2020). Thus, unprepared Universities are now being urged, even though not under compulsion to deliver online teaching so that academic work is not disrupted by the Covid-19 pandemic. Arguably, these institutions are the least prepared for virtual classrooms. This means that Africa will continue to lag behind, and the chasm will widen if we fail to leapfrog onto the technology bandwagon now (Bekoe, 2020).

African countries had no choice but to close their institutions as part of their lockdown measures to contain the spread of the virus. These institutions had no option but to have recourse to the use of Information, Communication & Technology (ICT) to deliver their programs online at a distance to their enrolled students (Mohamedbhai, 2020). But the process has laid bare the digital divide within the African continent: between those countries that have better ICT infrastructure than others; between higher education institutions within the same country, with some being far better equipped and experienced than others; and between students within the same institution – the rich who live in urban areas and the poor in rural areas who can barely afford to access the internet, when and if it is available (Mohamedbhai, 2020). At the center of all plans and possibilities were students and staff who did not have access to technologies and connectivity. This impacted on everything and was one of the greatest sources of anxiety about going online from our perspective in a teaching and learning center. Addressing these issues requires deep, challenging and ongoing work at the best of times, which we were not in (Czerniewicz, 2020).

Several Universities have already suspended the semester-end final examinations, whereas continuous assessment will go along the online classes. The transition from face-to-face teaching to online delivery has a serious impact on assessments and evaluation. Although technology has been used earlier to support teaching and learning, the assessment aspect is often under-developed and applying assessments online is a challenging task (Sahu, 2020). While some faculty members already had competencies in online or remote teaching in four areas – live streaming, pre-recorded teaching sessions, facilitating discussions in a digital platform and providing assessment and receiving feedback – much background preparation still had to be done to get academics, students and infrastructure ready for lessons to transition seamlessly into online learning (Lim, 2020).

It is true that the crisis has provided an opportunity to higher education institutions to quickly improve and maximize their ICT operations. However, the majority of them do not have the capacity to fully deliver whole programs online. While a significant number of African institutions have been implementing blended learning in order to increase access and improve learning, hardly any had intentions for their face-to-face delivery to be completely replaced (Mohamedbhai, 2020). For example, experience has shown that quality online learning requires that the teaching material is prepared by a professional instructional designer, that the lecturer is pedagogically trained for delivering the program and the students are equally exposed to the pedagogy of online learning. The unprepared online delivery

will have an impact on the quality of the programs such as science and technology as students will be unable to access laboratories for their practical (Han, 2020).

3. Leadership crisis amidst Covid-19 pandemic

Never before have had people such an acute understanding of modernity, advancement, internationalization, and our human interconnectedness in the global village. To resist the label of global village idiot, many higher institutions and organizations are enacting contingency plans to contain and manage the effects and impact of the virus in the hope that the 2020 academic year can be completed with minimum disruption (Behari-Leak & Ganas, 2020). The impetus has been to ensure that students complete their semester uninterrupted. Multiple online teaching guides, resources, webinars and videos are being prepared in rapid fire to this end to support academics as they upskill to migrate to remote teaching platforms or go fully online. In fact, prolific online resources have mushroomed and the internet and social media are brimming and bursting with new tools, tips and tricks and techniques for the new quick fix: toe-the-line by going online (Behari-Leak & Ganas, 2020).

Stückelberger (2020) reported that the global emergency of the Covid-19 pandemic confronts us all with unpredictable, disruptive situations which have changed our daily lives, economies, political decisions and Universities. Important changes have been made in terms of online teaching and admission and exam schedules and have stirred discussions about what a post-coronavirus University landscape might look like. However, Behari-Leak & Ganas (2020) stresses that when the leadership faced the enormity of the challenge and implications of Covid-19 it had to make bold decisions to maintain public support, funding and approval by keeping the academic project on track. University has had to show decisive leadership and robust management by responding tangibly and visibly to avert the threat to the academic year.

At the higher education level, people have seen leaders tackle the Covid-19 crisis in many different ways. Most of them, however, do not look outside of their institutions for solutions. The competitive streak appears to spur University leaders to ignore other leaders' actions and perhaps even to outshine others in what becomes a competition for the best ideas to combat the spread of the virus (Maringe, 2020). But in order to complete the academic year, senior decision-makers announced that blended learning would be one of the strategies used to enable students to complete their courses. This caught academics and professionals supporting teaching and learning off guard, especially in the first year (Czerniewicz, 2020). Maringe (2020) attests that crisis times are unlike normal times and they require different sets of leadership skills. In fact, some leaders cry and throw in the towel when things get really tough. As the Covid-19 virus devastated the country, they remarked that they and their countries had done everything possible and could do no more. But others don't actively do anything other than wait to copy and paste the decisions and actions of neighboring leaders (Maringe, 2020).

Extraordinary situations need flexible solutions in terms of assignments, admissions dates, academic schedules, exams and publications. The likelihood of students losing a semester may be unavoidable in some countries, but even in such extraordinary situations, the academic integrity of lecturers, students, researchers and University leadership must be upheld (Stückelberger, 2020). Thus, Saraç (2020) urges Universities to consider the following; 1) Constructive engagement - create opportunities for constructive engagement with other organizations, 2) Be empathetic - people come first before anything else, 3) Plan beyond the crisis- crisis tend to consume leaders efforts, and sometimes understandably so, 4) Focus on win-win solutions - there should be a strong focus on win-win solutions and 5) Creating a roadmap - the transition to online education be initiated. Universities and academics are seen as credible, independent voices. Such academic integrity is even more important in emergency situations.

Universities have their regular statutory bodies and without bypassing them, nimble and multifunctional teams with clear objectives and a common purpose can contribute to building trust and making decisions in line with institutional priorities. This crisis may give the opportunity to test forms of shared good governance that integrate academic leaders, managers and administrative personnel in a process of assessing the viewpoints of all engaged stakeholders when defining courses of action (Samoilovich, 2020). However, institutions need to brace for difficult times. The crisis has given visibility to the importance of research and innovation, as well as education and talent to overcome the pandemic. But it would be foolhardy to assume that this will automatically mean more money during the austerity that we will be facing once the cost of the crisis will have to be paid (Murphy, 2020). For Universities to switch to online learning, they needed technical support systems, and the curriculum has to be redesigned for online teaching. Currently some institutions don't have capacity to do online learning. In fact, the fear in migrating fully to online learning was that a majority of students will be left out (Ligami, 2020). So, they

need to make deliberate efforts to engage policy-makers and the private sector for them to transition seamlessly to online education. There were also concerns about faculty redundancies if Universities switch to online teaching, and an increase in mental health issues among students (Ligami, 2020).

Therefore, managing the processes of student learning online in terms of performance data and analysis, ICT literacy, instructional media, digital content design and deployment, and managing e-learning solutions is another major barrier (Larbi-Apau, Sampong & Kwofie, 2020). Since many of the institutions don't have integrated e-learning policies to guide innovative teaching and learning practices, it becomes difficult to get the buy in from all stakeholders including faculty and students. Going online is seen by academics as an additional responsibility and a threat to the status quo. So, there is a general and genuine fear of reform. From practical experience and informal interactions, others have expressed the fear of losing the human touch since they may not be physically present with their students (Larbi-Apau, Sampong & Kwofie, 2020).

3.1 Opportunities for embracing digital technology amidst Covid-19 pandemic

Higher education has been gradually leveraging the internet innovation to change their strategic directions because online instruction proved to be convenient for working adults and appreciated by millennials. This encouraged the Universities to make use of online instruction to enrich course content and attract students (Amemado, 2020). The evolution of online learning has also been widely discussed in the context of Covid-19 and higher education is no exception. In fact, online learning has been proposed for years, but received very little enthusiasm from Universities, academics and students. It was not until the outbreak of pandemic that some government and Universities had no choice but to work out online strategic plans (Nguyen & Pham, 2020).

The Covid-19 pandemic presents a range of opportunities to explore the digital space and pursue greater collaboration at all levels, but it also exposes and will likely entrench deep-seated inequalities in the higher education system, according to experts (Ligami, 2020). Although, there are educational advantages that e-learning training brings, e. g. online learning and blended learning, people should not forget its societal benefits considering its use during the pandemic (CAE, 2020). Universities in India, for example, have now recognized the importance of e-learning and online programs and the crisis presents a range of opportunities for fast-forwarding their digital transition. Many institutions are utilizing the government's integrated learning platform and offers classes through Google Meet and Zoom. However, this development exposes inequities in the system (Mathews, 2020).

Tamrat & Teferra (2020) shows that ICT has been identified as one of the major instruments for meeting many of the development imperatives expressed in the sustainable development goals. ICT also holds potential to drive development and transform Africa into a knowledge-based economy and information society. Soomro, Soomro, Bhatti & Ali (2018) reported that blended learning has emerged as one of the solutions to address the needs of higher education around the world. It is the combination of tradition classroom and online endeavor by providing advantages of both face-to-face and online. Most academics generally seemed to hold positive views about the benefits of learning with digital technologies. Even with some concerns it is noble that few agreed that learning with digital technologies is too time-consuming for the benefits gained (Bolstad, 2017).

Further, the benefits of online learning are innumerable and have been articulated in the literature and various reports to include comparable access, quality education and the ability to close the digital divide. For example, it saves instructional delivery time, assists in exploratory learning, and supplements core physical interactions in a blended learning environment. Unlike structured residential systems, online learning students are not under undue pressure to learn; rather they can learn under flexible conditions and self-pace their learning experiences (Larbi-Apau, Sampong & Kwofie, 2020). However, the safety measures announced by African governments in relation to the closing of educational institutions and the banning of gatherings have a negative impact on the continuation of teaching, learning and research activities as it could also be seen as an opportunity. Even though this appears to be a negative outcome we see it as an opportunity that African Universities can explore to introduce technology-based platforms (Dell & Sawahel, 2020).

The Association of African Universities has called upon Universities to move urgently to implement alternative methods of delivering teaching and learning using technology and other distance learning techniques in the wake of the closures of higher education institutions to limit the spread of Covid-19. However, educational leaders need to plan effectively to support the transition, collaborate with experts in the field of online education, and build access to electronic books and journal articles (Dell & Sawahel, 2020). For example, the Universities can provide instructors with three main tools for online instruction. The tool can be used for mass communications, asking

questions, collecting assignments and posting group projects. They can purchase Zoom Pro accounts for all lecturers to use for live instruction, Panopto to capture and share lectures online, including adding live polls and quizzes to the presentations (Stiffler, 2020). Rajab (2020) asserts that Mogadishu University has started to deliver classes using Zoom video-conferencing. It is a good platform with free minutes per meeting and subscriptions for conferences. Such moves to online teaching were important as predicted that many Universities would remain closed for months as the fight against Covid-19 continues.

The issue of access to the internet and digital platforms is particularly pertinent in Africa, where few people have access to broadband connectivity. But the reality is that Universities should be actively preparing digital platforms for students to engage both during the Covid-19 crisis and afterward due to the fact that the pandemic aftermath may lead to massive budget cuts and redundancies. It is inevitable that when Universities reopen, things will be different; hence digital applications will be the way to go (Ngalomba, 2020). For example, when Uganda announced a partial lockdown and the closing of schools and learning institutions due to the virus, avid promoters of ICT, virtual and online-based learning saw it as a golden opportunity that would change the practice of online learning in higher education. That's why the concept of online or blended learning has been on the higher education agenda for so many years (Nakayiwa, 2020). Thus, education systems need to evolve constantly to cope with the rapid advancement of digital technologies. Universities cannot simply return to the business-as-usual, chalk-and-talk mode of teaching and learning (Ngalomba, 2020).

On the other hand, a new Afrocentric teaching model which foregrounds the use of digital technology in its methodology and delivery, the importance of partnerships in meeting the higher education needs of the continent provides a powerful teaching and learning model particularly during the Covid-19 lockdown. The approach postulates that for students to understand a subject three key elements are important: the students' culture, technology, and the context in which learning takes place (Awaah, 2020). This is a model worth replicating especially the partnership aspect. It is worth stating that the model can reinforce the strength of online learning not only in times of emergencies but as an effective complement to the bricks and mortar system (Awaah, 2020). Nakweya (2020) also supports that the fusion of online and in-person teaching of science, technology, engineering and mathematics courses in institutions of higher learning could yield the same learning outcomes for students as traditional in-person classes but at a significantly lower cost.

Further, due to the difficulties many academics face with regard to distance learning and content preparation in the digital environment the course introduction to digital education environments has been launched online. The proficiency exams for postgraduate programs, meetings of thesis monitoring committees and thesis defenses could also be held in the digital environment provided that the necessary infrastructure was established and that the examination process was recorded and could be audited (Saraç, 2020). Also, an opportunity to test the new ICT capacity presented itself at the time of the abrupt closure of Universities as a response to the Covid-19 pandemic. After all, the same measures were adopted in China where the virus started. It was time to test whether the national ICT capacity could be translated into a learning aide in higher education. Champions of online and blended learning had an opportunity to prove that they too could provide a solution to the learning impasse presented by the University closures (Nakayiwa, 2020). Most of the institutions in India are now aiming to complete their syllabi and course contents using a variety of available digital media, some of them are also exploring the possibility of incorporating digital teaching and learning into existing brick-and-mortar set-ups. Such efforts can be divided based on the types of higher education institutions, the financial and dedicated technical support systems they enjoy (Mandal, 2020).

Murphy (2020) stresses that like all others this crisis is also an opportunity for Universities not least through the greater use of digital tools for enhancing the quality of learning and teaching. This leap forward must be followed by further investment in digital learning and in digital infrastructure. Therefore, roper efforts should be encouraged to identify best practices, integrate new and emerging technologies, stimulate faculty to be nimbler and more willing to use these tools, turn conventional Universities into bimodal institutions and make access to online education more affordable, convenient and engaging to leaners from all walks of life (Amemado, 2020).

3.2 Challenges faced by the leadership amidst Covid-19 pandemic

Higher education institutions are resolute about resuming their academic calendar but countless challenges with remote learning are impeding progress. The Covid-19 outbreak has seized the attention of leaders and emergency management teams at the Universities.

The pandemic has disrupted the ways in which institutions function, having a cascading influence on academic leadership responsibilities and obligation across faculties by requiring leadership immediate responses (Gigliotti, 2020). Also, the fourth industrial revolution, characterized by rapid breakthroughs in technology related fields has been brought into even sharper focus this year and digital sceptics are forced to confront the shift to digital with the crisis acting as a catalyst (Martin, 2020).

Universities are facing several challenges due to the high enrolment of first-year students from diverse social backgrounds. A considerable number of these students are from poor communities in the rural areas and townships. Many come from schools that are under-resourced and have little or no exposure to ICT in teaching and learning (Mbodila, 2020). Equally, many lecturers have already explored blended teaching strategies in the past, fully online learning and teaching is unfamiliar territory for most of our staff. Whereas their Learning Management Systems (LMS) spaces were often used only as a repository for learning material, lecturers now had to approach these online course pages as fully functioning virtual classrooms (Schoonwinkel, Van der Merwe & De Klerk, 2020).

Covid-19 will leave no sector in any country in the world unaffected, and its consequences will be felt for years to come. At a time when huge efforts were being deployed to transform and improve higher education in Africa, there is a danger the pandemic will destabilize the sector, with serious consequences (Mohamedbhai, 2020). As Malik (2020) stresses the virus may turn out to be a game-changer for the education sector, and especially for poorer nations with limited resources and an inability to construct traditional infrastructure for education. Thus, Universities across the continent are setting up institutional wide task forces to mitigate the impact of the pandemic. Many are attempting to shift to online teaching and learning through institutional, national, continental and international initiatives. However, more plans are at their initial stages of implementation and call for ramping up current efforts, forging wider cooperation, sharing experiences and resources (Tamrat & Teferra, 2020).

Further, two major issues that hold serious implications in the fight against the pandemic are online teaching, which is now championed as an alternative form of education delivery and the economic impact of the disease on higher education (Tamrat & Teferra, 2020). But online education is a complex endeavor. It is important to set realistic understandings and expectations of how it can support students affected by coronavirus measures. This is especially the case for Universities that disregarded online education before the coronavirus outbreak. Both academics and students may lack the training needed for quality online learning. However, developing online courses involves a team of experts such as academics, instructional designers, programmers and illustrators to follow a systematic design process (Lee, 2020). Notwithstanding the potential benefits, many of our higher education institutions in Ghana, for example, are challenged by inadequate organizational capacities to accommodate online learning and the use of educational technologies. To many, managing the processes of instructional reforms and digital course content development is very daunting. Operationally, many of the institutions do not have the capacity to synchronize student learning, databases, support systems, use innovative educational technologies, and University-wide connectedness (Larbi-Apau, Sampong & Kwofie, 2020).

Marinoni & Van't Land (2020) found that the lockdown posed other, more complex challenges to campuses. The primary challenge related to continue teaching when students, faculty and staff could no longer be physically present on campus. This obvious solution was to expand online teaching. However, the most obvious challenge is unequal access to ICT. Another, less obvious challenge is the quality of online provision when people are unprepared in a context of emergency. Amemado (2020) reveals that delivering online education has been adopted by almost all the Universities. Yet, some challenges are still getting in the way of e-learning in higher education. For example, at African Universities, these are mostly related to connectivity issues, lack of infrastructure and cost of data, while in Asia, are financial costs, regulations, digital gap and cultural leap for educators. In Europe, the main obstacles are students' self-motivation and self-organizational skills in fully online educational settings. At North America and Australia, keeping up with technology and getting faculty to adopt the cultural change is seen as the main difficulty, while at Latin America, the obstacles are achieving a higher level of engagement among students and ensuring course quality.

There are also conceptual challenges to the rise in virtual education, the most crucial of which is affordability and a lack of well-trained personnel to leverage this opportunity. Equally, government and education authorities may face problems as they accustomed to the traditional system and convincing them to move to online platforms will be a daunting task (Malik, 2020). However, there seems a clear divide between the former and the latter, and the premier and well-funded higher education institutions with better infrastructure are more equipped to adopt digital platforms almost seamlessly, while the rest grapple with basic and makeshift arrangements to continue to complete

their syllabi and assignments. This ongoing shift from a physical to a digital mode of academic intellectual transactions in institutions is remarkable and shows why there is a dire need to invest in developing digital technology-mediated platforms to support remote teaching and learning during and beyond the Covid-19 crisis (Mandal, 2020).

Mukeredzi, Kokutse & Dell (2020) found that Zimbabwe has some of the continent's most expensive mobile data tariffs. The students view the e-platform was not only beyond the reach of many students due to expensive internet, poor connectivity and electricity shortages but would marginalize those with outstanding fees. Meanwhile in Ghana, the students' union has called on the government to stop online learning in Universities. Students say institutions should stop demanding fees from students seeking access to online learning platforms and has called on management to refrain from conducting any examinations or assessments. There were also a number of accessibility challenges associated with the implementation of the e-learning platforms for University education (Mukeredzi, Kokutse & Dell, 2020). Further, the students' congress in South Africa has called for a national boycott of online learning, arguing that it is not equally available to all students. They agreed to enable multiple pathways of learning and to ensure that all students are given a fair opportunity to complete the academic year (Mukeredzi, Kokutse & Dell, 2020).

Equally, the academics from several Universities throughout South Africa have demanded an immediate halt to formal online learning at institutions, warning that continuation would result in an academic disaster and compound the effects of the pandemic. Given the social and economic inequality in the country, they argue that it is not only unrealistic but inhumane to continue with the formally planned online curriculum for 2020 (Naidu, 2020). Since most of the students left the campus before the lockdown, they are now in their homes. Therefore, the effectiveness of the online teaching and learning is now subject to the existing data subscriptions and internet speed where they are living (Mandal, 2020).

Ligami (2020) found that some Universities' Senate had approved a procedure for examining theses online which will ensure that there is no delay in graduation. Supervision of students' work was continuing through online platforms such as email, video conferencing and Zoom. That's why the social responsibility of Universities is embodied in a rich combination of teaching, research and societal contribution and Covid-19 is having both negative and positive impacts on research. On a negative side, it makes impossible for researchers to travel and work together properly, while on the positive side, many institutions are committing their labs and teams to research on Covid-19, searching for a vaccine and or drugs capable of treating the deceased or collecting and disseminating information on the pandemic (Marinoni & Van't Land, 2020).

The challenges of providing online education and support have not been simple either. These include poor internet connectivity, exorbitant internet costs, lack of appropriate technology – all of which are serious challenges to students over and above their possible lack of preparedness during such an uncertain period. Another serious challenge is the mounting number of students that do not have the opportunity or capacity to access the digital platforms created. The challenges continue to be a source of unhappiness for students and disagreement between students and institutions (Tamrat, 2020). In fact, Covid-19 had revealed the lack of institutional capacity in many African Universities to offer instruction remotely and a widespread distrust among academics for online teaching and learning. Although teaching and learning and students' assessments were starting to move online, the process had not been tested and remained risky and would be characterized by a lot of trial and error (Ligami, 2020).

MacGroger (2020) confirms that Covid-19 has brought chaos. It has also exposed numerous issues. One is inequalities within and among Universities in terms of the ability to handle the crisis. The pandemic has also laid bare problems around infrastructure and capacities in institutions. Equity is one of the big considerations for online education, as some students don't have access to computers or tablets, internet access, or a safe, supportive learning environment. The move to online delivery of lessons institutions have been greeted with considerable skepticism due to these challenges (Tamrat & Teferra, 2020). Equally, many institutions do not have dedicated academic support services to orient students towards online pedagogy and learning requirements and competencies. Students from financially challenged backgrounds may find it difficult to access data and the internet because of the high cost (Larbi-Apau, Sampong & Kwofie, 2020).

The other challenge is that many first-generation students in rural areas have difficulties with network coverage, and irregular electricity supply, which mean there is no academic support at home. In view of these challenges facing students and institutions, the big question is: What model will be suitable to deliver education during- and after lockdown, while we wait for life to normalize in our society? Given both the institutional and student

challenges it is unrealistic for higher education to advocate a fully online approach to teaching and learning bearing in mind that for many years there have been stumbling blocks to e-learning integration and adoption (Mbodila, 2020). Whilst e-learning has theoretically been in place for years in most of these institutions the reality is that there are no policies to promote online teaching and learning. So, there is a need to modify the current orientation program model so as to introduce students more fully to learning tools. These strategies can only be possible if there are policies in place supported by the University leadership (Mbodila, 2020).

Gillett-Swan (2017) reported that challenges in the online space and limitations of specific LMS software such as BlackBoard Collaborate, e.g. video features/capabilities can slow down interaction and provide limits to functionality while also adding to the time limitations and frustrations experienced by both lecturers and students. Ligami (2020) found that there were also challenges of ensuring the quality of learning on online platforms, protecting the integrity of assessments, in addition to challenges around access to internet and devices. For example, as a result of the new epidemic most Universities in China have encouraged their professors to apply online teaching instead of in-class teaching and this is likely to continue for the indefinite future. Although some professors and students complained about problems with online teaching and lack confidence in its effectiveness many are still new to the whole online experience (Han, 2020).

Nigeria's Universities have also been struggling to shift their activities online. Among the reasons are poor internet infrastructure and lack of reliable electricity supplies. Poor public internet infrastructure has meant students are finding it difficult to undertake academic work remotely including the use of virtual libraries (Okocha, 2020). Even hybrid models where large classes are stopped but smaller face-to-face classes continue can be hard. For example, if any institution was to implement this one important point to remember is timetabling. If students are expected to participate in live streaming online environments, they need quiet locations to do so. If individual lecturers are to run hybrid classes it takes extra skills and effort to ensure that whatever is communicated in the physical environment is clearly articulated to those at home unless the individual has a device such as a portable microphone (Lim, 2020). Okocha (2020) further stresses that with the lockdown the University course and examination calendar has inevitably been affected. The leadership will have to look at it to minimize the impact on students and academics. The main concern is that students will face a glut of academic work with shortened deadlines once classes resume.

The spread of Covid-19 has led the closure of educational institutions all over the world. Such closure accelerated the development of the online environments within those institutions so that learning would not be disrupted. The pandemic tested the readiness of academic centers to deal with a crisis that requires online and remote measures. Many were not prepared but it is crucial to review the reasons for offering students online classes, which go beyond periods of confinement (CAE, 2020). Thus, there are still a number of immediate challenges to be met. Regulations concerning study times, examinations and grants need to be adapted in a short time, in light of the need for students to stay at home. Educators in many places still need to fine-tune their skills to make the most out of the new learning environment. More broadly, the economic consequences of the pandemic have deepened social inequality among students' studies at Universities (Murphy, 2020).

3.3 Lessons learnt through lockdown restrictions amidst Covid-19 pandemic

The unprecedented crisis of the Covid-19 pandemic has evoked a plethora of responses from philosophical, political, financial, economic, social and medical quarters. These multipronged perspectives reflect a rich diversity of reactions commensurate with a virus that seemingly loves diversity too: Covid-19 does not discriminate, favor, privilege or marginalize anyone in its diaspora; it has proven to be universal in its reach – anyone can get it, from anywhere and from anyone in the world (Behari-Leak & Ganas, 2020). Apart from this untimely crisis, Han (2020) found that most Universities have been encouraging their faculty to provide online teaching so their students can learn at home. Although online teaching is much better than no teaching at all, it is not as effective as expected. Therefore, a hybrid teaching (traditional with online teaching) is proposed as a regular teaching process to prepare for future unforeseen emergencies in higher education. It gives academics and students specific practice in using online education. Jalli (2020) reported that policies on online teaching are lacking except existing e-learning policies for Universities and this needs urgent intervention.

The Covid-19 pandemic has caused seismic disruptions to the higher education sector, but has also offered significant lessons on the importance of self-reliance on the part of African countries when it comes to dealing with societal challenges as well as greater collaboration with other partners. Responses and lessons learnt from African Universities revealed the pandemic had opened the eyes of higher education leaders to the fact that institutions

belong at the center of development and at the forefront of the search for solutions to societal challenges (Dell, 2020). The University of Nairobi, for example, has outlined its distance education plans in the wake of the closure of institutions. In fact, the move to online learning was necessary if a semblance of normality was to be achieved during the closure. The institution has responded to the current crisis by tapping into its existing investment in open and distance e-Learning (Nganga, Waruru & Nakweya, 2020). But going digital effectively requires substantial coordination with and swift support from institutional and national service providers, regional entities, international partners, NGOs, the private sector and ICT providers to rally behind such tools and platforms at little or no cost. While this is taking shape, institutions need to develop a comprehensive plan and a rigorous follow-up scheme to ensure that academics and students make proper use of digital platforms. This task cannot be left solely to the discretion of individual actors (Tamrat & Teferra, 2020).

Further, the pandemic will leave no sector in any country in the world unaffected, and its consequences will be felt for years to come. At a time when huge efforts were being deployed to transform and improve higher education in Africa, there is a danger that Covid-19 will destabilize the sector, with serious consequences (Han, 2020). Rajab (2020) attests that Universities that fail to adapt to this new reality will suffer. Institutions must start adopting online instruction. He called on internet service providers to help the institutions by waiving or reducing fees charged to students logging on at home. Smaller institutions are also struggling with funding the costs of remote learning. African countries had no choice but to close their institutions as part of their lockdown measures to contain the spread of the virus. These institutions had no option but to have recourse to the use of ICT to deliver their programs online at a distance. But the process has also laid bare the digital divide within the African continent (Han, 2020). The range of containment measures imposed by national governments to counter the spread of the coronavirus pandemic has dramatically affected research, teaching and learning in Universities – in some cases leading to their suspension. The closure and restrictions on teaching will affect institutions where digital infrastructure is poor and e-teaching is difficult. At the root of the issue are resources and preparedness (Sawahel, 2020). Other Universities are considering whether or not to delay the examinations, while still others are assessing their capacity and that of their staff and students to actually conduct online exams. Online assessment is possible but it requires the means. All these need to be quality assured and this becomes a major worry for every quality assurance expert. Continuous assessment could replace examinations but only if lecturers were in a position to reach everyone. And practical disciplines like medicine presented a challenge to this approach (Sawahel, 2020).

The University of Tripoli was a long way off being able to conduct online examinations owing to lack of experience, expertise and equipment on the part of students and staff. Many institutions were not prepared to conduct online exams mainly due to lack of capacity among academic staff and students in the use of ICT. As a result, several institutions have been closed down as a result of containment measures and simply stopped all academic activities. This situation calls on Universities to put in place adequate policies that will help to promote online distance education (Daily News Egypt, 2020). In fact, higher education authorities have cancelled the final exams of the second semester in different institutions to help stem an outbreak of the new coronavirus. The exams would be cancelled and replaced by either a research paper or an online exam according to certain guidelines. The online exams will be limited to academic institutions and study programs that have the necessary technological infrastructure to conduct such tests (Khaled, 2020).

Nakayiwa (2020) suggests that there are four key issues for Universities, policy-makers and the students to ponder; 1) Staff capacity development and attitudes towards online learning, 2) Fear of the unknown and inequity in access to ICT resources, 3) The generation gap and attitude to using ICT and 4) Autonomy and academic freedom of institutions. It is apparent that although it is a necessary condition, the development of ICT infrastructure has not been sufficient for the development of online learning in several Universities. It's still a massive, disruptive shift to move online in a matter of days. It takes finesse to create the same impact with a lecture delivered in person versus online and some subjects don't smoothly translate to the format. There's the matter of creating and proctoring quizzes and tests in a way that prevents cheating (Stiffler, 2020).

3.4 Solutions for the leadership to overcome Covid-19 pandemic

The global higher education community is suddenly thrust into an unplanned, unwanted and fraught experiment in online learning with the Covid-19 pandemic. For many of those participating institutions, faculty members and students, it is not what they want but it is what they are stuck doing through the end of this academic year. But the question is: How should they proceed? (LeBlanc, 2020). According to MacGregor (2020) what Universities do today will determine how they emerge from the coronavirus crisis. While this is a harrowing crisis, institutions must

seize opportunities embedded within it so as to come out of the crisis stronger and more resilient, adaptable and flexible.

Tamrat & Teferra (2020) stresses the institutions are expected to do more in the months ahead while concurrently battling across many fronts. This includes addressing the more immediate challenges of the threat of Covid-19, seeking improved mechanisms for online delivery and planning to address the long-term effects of the pandemic on institutional capacity. The expansion of public Universities will be abruptly frozen. Private providers which are dependent on tuition and other fees will also be hard hit with many facing downsizing or even closure as they receive little or no support from governments. On a positive note, this threat and the approaches to overcome it may be catalytic for long-lasting changes in higher education. Among others, diversified means of educational delivery in particular a non-residential model may become more mainstream, more acceptable and more respectable (Tamrat & Teferra, 2020).

LeBlanc (2020) urges institutions to start embracing digital technology and said in a volatile world, rigid equals brittle and institutions that cannot figure out how to work differently may not work at all. Economic recovery and support to other sectors of the economy will have to come later. But it is vital for each sector to start reflecting on the impact of Covid-19 and assessing its possible consequences, otherwise recovery of the sector may be too slow, too late. This applies to the higher education sector as well. The approach must be holistic and involve all stakeholders including the private sector. Each country should set up a task force on higher education under the leadership of the relevant ministry to survey the situation, suggest immediate and short-term measures and be ready to affect redress when the crisis is over (Mohamedbhai, 2020).

In Delhi, the academic committee has cancelled the summer vacation. It said students who will not be able to appear for online examinations due to lack of access to internet connectivity should be allowed to appear for their exams after the lockdown restrictions are lifted (Hindustan Times, 2020). Online teaching is a smart solution and is much needed. Many Universities have developed creative solutions at short notice, but complaints about educational inequality especially in developing countries are increasing. However, full equality may not be possible as technological conditions vary too much, but all possible efforts to promote equal treatment should be made (Stückelberger, 2020). Also, in the more immediate term to deal with the lockdowns, institutions need to develop a short-term plan that will cater both for students who have full access to online resources and those who do not. There should be an online delivery model during the current lockdown that will be supported with a sort of winter and-or summer school when classes resume to bridge the gap for all students before we even start thinking about developing any assessment plans. Proper conversation and action are needed to shape a way forward for the 2020 academic year and beyond (Mbodila, 2020).

Further, Naidu (2020) calls for state-level intervention in resourcing and infrastructure development; academic, financial and accommodation protection for students; and labor protection for education workers. That's why several Universities launched their online activities with student orientation programs, alongside a range of other contingency and continuity plans to ensure connectivity for students and access to the necessary electronic devices. According to LeBlanc (2020) the New Hampshire University, for example, which had a large online learning presence even prior to Covid-19 offers the following four rules; 1) Do what it takes to get through this phase - higher education rightly prides itself on high standards, 2) Students matters most - anxiety and depression are rampant among University students and 3) Plan for the long haul - for countries not managing their pandemic response well, there is the very real possibility that campuses will not reopen soon.

The major takeaway from the study for African Universities is that moving instruction online at scale requires a collaborative effort across multiple institutions. States and Universities need more investment in online education platforms and pedagogically sound interactive online courses. But in the wake of emergencies such as the coronavirus, it becomes hard to set up high-quality online instruction (Nakweya, 2020). As with any time of crisis, the imperative to adapt has generated potential opportunities, amidst the numerous challenges. It has become apparent that in order to remain responsive to the needs of our stakeholders, an all-hands-on-deck response from academic, support and administrative environment is required. In fact, there is a marked sense of productive synergy as colleagues rely on one another to process unrelenting waves of new information relating to the Covid-19 crisis and to find pragmatic and immediate solutions (Bekoe, 2020). But the situation is not hopeless and there are some successes stories that can be showcased from which others can learn. For example, some institutions still offer open and distance learning and some countries have already established open Universities which are doing marvelously well in online learning (Bekoe, 2020).

There is a sense that leadership, management, academic and student choices should be focused on and driven by needs shaped by institutional contexts and their differentiation. There can be no one-size-fits-all model for the entire sector. Despite the technological advancements currently promoted in the African space, research intensive-, comprehensive- and Universities of technology need to reconsider their unique contextual, access, resource and capacity realities to make sound curriculum decisions to the benefit of all stakeholders (Behari-Leak & Ganas, 2020). In the interest of promoting collaborative and relational engagement among staff responsible for enhancing educational quality and scholarly teaching and learning in the time of Covid-19, people hope that a national discussion or an online convention among academics, University management, policy-makers, statutory bodies and other professional associations is encouraged urgently. This will open up ways of thinking together and embracing diverse, pluriversal and contextually relevant ways of knowing and being in response to the crisis. Academics and students are part of the community and are highly capable of contributing to the decisions taken now (Behari-Leak & Ganas, 2020).

The teaching, learning and research at the poor-quality institutions are to be worst hit by this pandemic, as they are neither prepared nor have the financial support or technical know-how to facilitate effective teaching and learning digitally. While this unprecedented situation may work as a testing-bed for the feasibility and effectiveness of digital technology and the preparedness of these institutions in delivering teaching and learning remotely, it requires further investigation and diverse empirical studies to suggest evidence-based policy recommendations (Mandal, 2020). Researchers, for example, are now working remotely. Whilst Universities have some support mechanism in place, some research projects will be significantly impacted due to the scale and reach of Covid-19 crisis, which is likely to extend far beyond the immediate lockdown period (Jappie, 2020). Further, though campuses are physically closed, online education allows us to stay connected with students and academics. Along with the University leaders and board members, people will keep working to produce innovative solutions in order to develop much more effective online classes and they hope very much to return to in-class teaching activities soon (Saraç, 2020). Thus, Jappie (2020) urges institution staff and students to support one other to fight this virus together. Despite the fact that some institutions have commenced with remote teaching, a clear, inclusive and participatory strategy must be adopted for University management to engage staff and seek solutions together.

Saavedra (2020) found that remote learning is not only about online learning, but about mixed media learning with the objective of reaching as many students as possible. The challenge today is to reduce as much as possible the negative impact this pandemic will have on learning and build on this experience to get back on a path of faster improvement in learning. Therefore, Marinoni & Van't Land (2020) attests this unprecedented crisis reaffirms that in such difficult times, sharing resources is the only way for the global higher community to rise to the challenges and proudly claim its fundamental role in society.

4. Conclusion

Most institutions of higher education are hurriedly responding to an extraordinary event that will compound their existing challenges such as budgetary inadequacies, systemic inefficiencies, low adoption of technology and low capacity to generate funds internally. Working together ensures that the continent approaches online education holistically with appropriate budgets and funds to ensure that all levels of education are factored into the discussion and decisions (Bekoe, 2020). It also creates a unique opportunity for institutions and national and multinational ICT enterprises to work together to develop an online teaching system to support traditional forms of face-to-face teaching (Nguyen & Pham, 2020). Switching to virtual education may be one method to reduce the spread of coronavirus, but this move also can cause challenges for students who are not able to access internet-based education. Given our current technological age the University of the future was always likely to transcend borders, and more precisely be a virtual one without classrooms. But the outbreak of the novel coronavirus has exposed the world's unpreparedness for virtual or online learning (Bekoe, 2020).

One of the potentially positive consequences of the Covid-19 crisis, and the lockdown that has followed it is that we have to come up with better ways of doing things. This is likely to happen in education and an incoming largescale investment in online education is almost a certainty, resulting in greater capacity with more young people having access to education (Grootes, 2020). Lee (2020) perceives ease and usefulness of online education is largely influenced by users' first experiences and it has a significant impact on its actual adoption. The idea that online education is being rapidly implemented at the expense of quality is worrisome as it may result in online education being discarded after the coronavirus outbreak ends. Further, Lalima & Dangwal (2017) found that blended learning is an innovative concept that embraces the advantages of both traditional teaching in the classroom and ICT

supported learning including both on- and offline learning. However, the implementation needs a full dedication on the part of education authority and management responsible for higher education. Thus, going online has to be carefully planned, and faculty members at the front line of this movement need more support than a simple operation notice justified by an emergency declaration (Lee, 2020).

Murphy (2020) further confirms that the University autonomy and academic freedom could be at risk. In some countries, emergency rules have been established giving powers to the executive beyond the common checks and balances. One big risk for the time after the crisis will be the temptation of governments to cling to their new powers. We have seen institutions autonomy and academic freedom under pressure in recent years as some states have grown more authoritarian. According to Czerniewicz (2020) it will be political. Change will be appropriated for different ends and tell different stories for different people. Technology is never neutral. Keep it simple and as complex as is essential. Keep issues of inequality upfront and plan for your own context. There are serious data implications: for inequality, costs, privacy and surveillance. It is not just academics and students who are under pressure; remember all other people are involved.

A number of Universities are beginning to consider the possibility that in-person classes may not resume until 2021. The news underscores just how upsetting the coronavirus has been to the reliable beats of higher education where institutions are facing once unimaginable changes to their ways of life. With classes moved online, spring break cancelled, summer jobs furloughed and commencement ceremonies postponed, students remained largely hopeful that the fall would bring an end to the uncertainty (Ries, & Wagner, 2020). Bassett (2020) stresses that it is imperative, however, that those in a position to think beyond immediate survival by providing remote learning via a plethora of modalities - keeping an eye on core values in tertiary education sector so that when a crisis abates fundamental values such equity, a baseline assurance of quality, accountability balanced with institutional autonomy, academic freedom and social responsibility remain within the mission of all tertiary education systems. MacGroger (2020) for example, agrees that countries that did well during the 1918 Spanish Flu pandemic managed the crisis properly and were able to put in place systems, structures, processes and best practices that they could use during post-crisis.

Finally, this virus has put the spotlight on antiquated financial models, rigid admission and registration procedures and dismal student progression and graduation rates. It will present higher education with opportunities after the dangers of pandemic have passed or a vaccine is discovered which makes it safe, once again, to resume normal activities (Dennis, 2020). In fact, research has shown that University leadership across the globe has to do the same thing as thinking institutions create and disseminate knowledge through research, teaching and learning. After all, these are institutions that must be at the forefront of understanding any unplanned or untimely crisis.

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