Coming to Terms With COVID-19 Reality in the Context of Africa's Higher Education: Challenges, Insights, and Prospects

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This perspective paper aimed at elucidating the effects of the COVID-19 pandemic on African institutions of higher education. With specific reference to Kenya, the paper exposed the state of the country's unpreparedness in terms of instructional technologies, a situation that had contributed to an almost total shutdown of institutions following the outbreak. It was notable that whereas Kenya—like most African countries—had not borne the brunt of COVID-19 infections in comparison to other countries outside the continent, its education sector was adversely affected. This followed the social distancing requirement that limited in-person gatherings—the low rate of infections notwithstanding—implying that its learning institutions, most of which operated on in-person mode, had to close. Since most universities in Africa had hitherto operated on this mode, the shift to online learning was not easy. Save for a few universities that had digital infrastructure, the rest encountered difficulties in moving to remote learning. Many had to quickly assemble digital curricula, the quality of which could not be guaranteed. Even if an institution managed to do so, not all students could be brought on board. Digital exclusion became more pronounced than ever before, with learners who were economically, technologically, and geographically disadvantaged missing out. Inequalities in education were laid bare and exacerbated. All this notwithstanding, Africa learnt lessons. The whole experience prompted various stakeholders—university management, faculty, and government—to rethink their modes of education delivery, with quality and access in mind. In retrospect, the pandemic could serve as a catalyst for digitalization in Africa's higher education system.

Keywords: Africa, COVID-19, Kenya, online learning, higher education

INTRODUCTION

The SARS-CoV-2 outbreak and subsequent pandemic has had far-reaching global impacts, including on the education enterprise. Various non-pharmaceutical interventions were proffered, key among them social distancing that necessitated the limiting of in-person gatherings. This led to the closure of many learning institutions globally. Africa is observed to have borne the brunt of the pandemic's effects on education (Marinoni et al., 2020; International Association of Universities, 2020b). It was estimated that 95% of learning institutions closed (GUNI, 2020), a situation that was largely attributed to low uptake of educational technologies. The International Association of Universities'

Global Survey on the impact of COVID-19 on higher education around the world established that Africa had the highest percentage of higher education institutions affected, with 77% of campuses closing down (International Association of Universities, 2020a). This paper focuses on Kenya, a country located in the Eastern part of Africa, and describes how higher education was affected. It further contains anecdotal references from the author's personal experience both as a post-graduate student, and a tutor in one of Kenya's university colleges, in the wake of the disruption that COVID-19 caused in the country's university education.

Notably, the state of preparedness by the country's individual universities and colleges in terms of online education greatly determined the magnitude of the disruption of their academic calendars: The more prepared an institution was, the less harm it suffered (Yan, 2020). There existed cases where institutions closed down completely so that their administrative wings could sit and strategize the next course of action.

FACULTY PREPAREDNESS AND INSTITUTIONAL INFRASTRUCTURE

Generally, Kenya's education landscape does not have a robust online education infrastructure (Barasa, 2021; Wachira and Ombati, 2020; Suhonen et al., 2016). As a matter of fact, approximately 60% of the country's universities opted for remote delivery modes in a bid to mitigate the disruption; however, there were reasons to worry concerning the success of such experiments, given that most of the higher learning institutions had not, prior to COVID-19 eruption, established online learning platforms. Various reports indicated the unpreparedness of most higher education institutions in terms of requisite capacity to conduct virtual learning (Nyerere, 2020). This would explain why, when universities declared a shift to online platforms, the country's Commission for University Education wrote to them demanding they establish the quality of online learning that they were offering in the wake of COVID-19 break (Wanzala, 2020).

Admittedly, there has not been a coherent articulation of what the institutions meant when they talked about online learning. This could be illustrated by the nature of technological tools that would be employed to conduct remote delivery of education. For a start, some faculty used electronic mail to send reading materials and assignments to students. Social media platforms were equally employed, for example, Facebook, WhatsApp, and Telegram (Omulando and Osabwa, 2021), which were viewed as popular channels of communication. The latter two were used to transfer course content as well as completed assignments. These activities were largely asynchronous.

Away from the adherents of asynchronous learning, there existed another group of faculty who believed that remote delivery methods were supposed to be exclusively synchronous, characterized by virtual live engagement. For them, the notion of blended learning was alien. Consequently, they contemplated a real-time engagement that is conducted through internet-based online delivery. When this state of

affairs is obtained, it is highly unlikely that such faculty will be as open-minded as to think of creative and innovative ways of interacting with students in the absence of a robust online learning platform. As such, they may sit back awaiting the end of the pandemic, or establishment of what they consider a typical online platform. Without prejudice, the foregoing seems to have been the case, so that the faculty's consequent inaction negatively impacted on the students already enrolled in their classes. Anecdotally speaking, the author of this paper observed cases where students within the same institution and departments would miss out on classes, owing to technological incapability of the tutors in the respective courses, while their counterparts—who had technologically savvy tutors—continued with their studies. Students would therefore lag in some courses but excel in others, depending on the technological orientation and capability of their lecturers.

It is worth noting that things were not easy for faculty who attempted basic modes of online education, even as they regarded them as stop gap measures. First, many public universities and colleges in the country had huge numbers of students. This implied that faculty had to contend with numerous file documents submitted by students following completion of assignments. It was confounding, for instance, how a lecturer could handle over a thousand submissions in their email inbox from students in their various courses. Indeed, some of those completed assignments were sent via WhatsApp, Telegram, and such like applications; downloading and consolidating all these was not an easy task. Weary of this tedious undertaking, most faculty resorted to sending lesson notes to students one-way, in the hope that the pandemic would subside to give way for physical gatherings, the latter making way for administration of examinations. Furthermore, practical-oriented courses were halted for the time being, but having had problems with online instruction, it would not be logical for one to expect the institutions to administer online assessment and examinations, much less, to conduct practical lessons virtually. Indeed, the few universities and colleges that attempted administration of online examinations faced questions over the credibility of the testing, since most had not proctored requisite software that would guard against examination cheating (Kibuku et al., 2020; Awandu, 2021).

The foregoing exposition pointed to two major problems as pertains the effect of COVID-19 to higher education in Kenya. First was the faculty's unpreparedness to handle teaching and learning using other modes apart from the in-person one, and second, the institutional unpreparedness in terms of online education infrastructure. On the first problem, it emerged that most faculty had not given prior thought to the issue of virtual delivery modes, reason as to why they did not immediately resort to the easily available online applications such as Zoom, Google Classroom, and Microsoft Teams video conferencing facilities (Tarus et al., 2015; Mutisya and Makokha, 2016). Faculty readiness in terms of technological knowledge is a prerequisite for effective online education (Koehler and Mishra, 2005). Furthermore, the fact that faculty were not ready implied that they would not be helpful to their students even if the latter were ready.

On the second problem, institutional incapacity in terms of infrastructure for online delivery meant that faculty and students would not do much. For instance, universities that had not procured Learning Management Systems left students at the mercy of their tutors' creativity and initiative. Furthermore, tutors who had the technological know-how could not do much in the absence of a robust institutional online education platform. Since examinations (at least for those students who had been taught through virtual delivery modes) could not be conducted owing to lack of requisite online platforms, and since tutors could not proceed to the next courses before examining students on what they had been taught, the academic calendars of these institutions stalled. Consequently, they closed for extended periods as the pandemic raged on.

The problem of faculty unpreparedness was not limited to technological know-how. Their ability to prepare digital content came to question as well. Online education experts emphasize the need for a tailor-made content that suits the demands of online education (Dzubian and Picciano, 2013; Martin et al., 2019). Furthermore, they insist on integration of knowledge on content, pedagogy, and technology if online learning is to succeed (Koehler and Mishra, 2005; Lichoro, 2015). However, considering what transpired in many institutions of higher learning in Kenya, where content designed for the in-person mode was wholly shifted online, there was a reason to worry over the efficiency of such instruction.

For instance, there were instances where faculty would lecture for several hours over platforms such as Zoom and Google Meet, a situation that was likely to have a negative impact on the concentration span of students. It should be noted that most students used mobile phones in place of tablets and computers. Whereas they were fond of using the former to connect to the internet, it was not granted that they would equally be comfortable following up online classes using the devices. For instance, one can be online for two consecutive hours, visiting different captivating sites, but find it difficult to concentrate for the same duration listening to a monotonous lecture. Furthermore, some faculty were inadvertently insensitive to the nature of materials they shared over these platforms. For example (anecdotal), a lecturer would upload a file containing graphics, a situation that required students to incur more in terms of data charges when downloading the content. Similarly, some of the files would be in formats not supported by students' devices. This resulted in anguish and frustration on the students' side, making them lose out and consequently develop resistance to online education. Faculty were not spared either, as it implied that they could not achieve their preset expected learning outcomes. Furthermore, it bothered them to know that their students were disadvantaged in various ways, yet there was not much they could do to assist them cope with the "new normal."

Considering the foregoing, Kenya was ostensibly set for difficult times as online education became a necessity. The situation stood in contrast to other parts of the world where online learning had been relatively well-established, so that such countries—whereas they experienced differentiated challenges—did not have to begin from scratch. For instance, it had been reported—even before COVID-19 breakout—that

online education among higher education institutions in Western countries had flourished (Allen and Seaman, 2014). Furthermore, their transition to exclusive online education was relatively easier since they had prior experience (Fox et al., 2020). For them, expansion of online education was a vital cog in their institutional strategic plans (Instructional Technology Council, 2013), and, as they observed, it helped them boost student enrolment since students would learn from whichever part of the world without, off-campus. Whereas this was the case in most developed countries, Africa largely operated along the in-person mode, a situation that contributed to its vulnerability when the social distancing requirement became necessary.

Concerning the second major issue: online education infrastructure, most higher education institutions in Africa had not, by the time COVID-19 broke out, lay a strong foundation. Previously, various studies had been done concerning the state of online education in Kenyan universities, for example (Hadullo et al., 2017; Oketch, 2013). Of importance was one that focused on Jomo Kenyatta University of Agriculture and Technology, the country's *de facto* lead institution in the field of science and technology. In the report, various challenges were found to be militating against smooth execution of online education: less funding, poor infrastructure, and lack of an Information Communication Technology (ICT) culture that could have seen the institution integrate the latter in its daily operations. This was in 2018, and it was highly likely that these challenges had not been entirely surmounted by the time COVID-19 erupted.

Indeed, other universities had initiated some learning management systems, for instance, Moi University, which had an online platform dubbed MUSOMI (Moi University System of Managing Instruction); Kenyatta University's Kusoma; Maseno University's e-Campus platform, among others. However, these had not gained traction owing to lack of ICT culture within the institutions.

Even so, Kenya was not ready to facilitate online education as exemplified by its low internet connectivity as well as poor electrical infrastructure. There were many parts of the country where mobile network connectivity was erratic, and where it existed, the signal was weak. This was quite discouraging, since one could not access the internet even if they had the know-how and requisite devices. Furthermore, the intermittent supply of electricity, at least in areas that had been connected to the national grid, worsened the bad situation. Implicit, faculty who resided in the disadvantaged regions could not access the internet. hence were both helpless, and unhelpful to students.

STUDENTS' EXPERIENCE OF ONLINE LEARNING

Students suffered immensely when learning was moved to online platforms. Not only were they unprepared cognitively but socially and economically as well. It should be noted that most students, especially in Sub-Saharan Africa, are from areas experiencing high poverty. These students do not have the training in digital literacy that primary and secondary schools provide. It is therefore not uncommon to meet a first-year college student

who has never used a digital device such as a smartphone when attending college for the first time. Therefore, when everyone was made to shift online, most students experienced difficulties even on the most basic practices such as connecting online. There were cases where they bought new mobile phones, but owing to lack of experience, could not install browsers that were compatible with user-friendly applications. Furthermore, most could not afford data charges, much more, maintaining power since their homes were not connected to the power grid. Coupled with low-speed internet, the whole experience could be described as gruelingly frustrating. These challenges had been foreseen in previous studies (Muuro et al., 2014; Mutisya and Makokha, 2016). In the final analysis, it was defeatist for African institutions of education to move online without consideration to the existing infrastructure.

The fact that basic smartphones were the dominant devices used by students meant several things. First, the students, as mentioned earlier, strained a lot in a bid to keep up with classes, and even read the notes sent by their lecturers, owing to the tiny screens. Second, lack of personal computers meant that they could not type their assignments and submit for evaluation. In a study carried out in one of the university colleges, 99% of students had smartphones, while only 10% possessed personal computers (Omulando and Osabwa, 2021). This largely reflected the situation across the country. In cases where lecturers insisted on submission of the completed assignments, students would be forced to seek typesetting and printing services from commercial cyber café attendants who charged them exorbitantly. Third, the internet connectivity for the smartphones was dependent on telecommunication service providers. For instance, some areas were only covered by a certain service provider, say Safaricom or Airtel, and whenever they suffered a downtime, however infrequent, no connection would be enabled.

Lack of digital devices and internet connectivity were not the only problems, however. There were cases of students would have both the device and connectivity, but fail to access online classes owing to the communication tools and applications used by lecturers. For example, the most easily available video conferencing tools such as Zoom and Google Meet had set limits on the number of participants they would admit, in cases where users preferred the non-commercial versions. However, some faculty, unable to procure the commercial versions of these applications, resorted to free ones oblivious of the students that would be locked out. This was an indictment on the institutions as well, since most faculty resorted to individual choice of online platforms owing to the inability of the institutions to provide definite, comprehensive ones. The net result of all these was an entrenchment of inequality in the Kenyan higher education, since students who did not have the wherewithal of connecting online either received little tuition or deferred their studies altogether, while those who were lucky to have all the supportive devices and environments proceeded with their studies. It was not surprising that many universities closed, sending students home while they sought for ways of establishing online education infrastructure and training faculty.

WHICH WAY FOR HIGHER EDUCATION IN KENYA, AND BY EXTENSION AFRICA?

Were Kenyan universities and colleges ready to respond to a digital challenge presented by COVID-19? The answer is a definite no. Ideally, online learning requires a huge investment such as training of staff, acquisition of instructional designs and technologies, creation of institutional central online platforms, and packaging of courses into online digital mode (Batty and Hall, 2020). This was not the case in most parts of Africa. Furthermore, research had established that academics and students who experienced challenges owing to their unfamiliarity with remote learning environments became reluctant to accept and adopt technology use in education, much more, embrace the new online education design (Flavell et al., 2020).

Indeed, Dzubian and Picciano (2013) aver that even with online mode of teaching and learning, instructors would still have to make decisions concerning pedagogical implications. For instance, they ought to know when synchronous and asynchronous interactions are appropriate, and when to employ either competitive or cooperative pedagogies, among many other options. Decisions concerning appropriate ways of encouraging student involvement (for example through chats on discussion boards), choice of suitable delivery methods, choice of suitable assessment mechanisms, and general administration and management of online courses can best be made if faculty are competent enough (Passmore, 2009). It was also critical to have mechanisms that would prevent unfounded practices from being replicated under the guise of online education (Mohamedbhai, 2020), where, for instance, an instructor would just exclusively upload lesson notes and recorded audios onto learning management systems, or send them *via* electronic mail and other media, and claim to have taught.

This is to say that once online learning is established, there ought to be interventions that would guarantee quality in terms of content and methodology. Such require thorough preparation amidst monitoring and evaluation (Hadullo et al., 2017). In the developed world, for example, preparation of digital course designs and content is outsourced to experts who ensure quality and objectivity. This could be extremely helpful in the Kenyan situation, given that majority of faculty were not well acquainted with preparation of digital curricula (Omulando and Osabwa, 2021). Furthermore, assessment of knowledge gaps, an aspect that was absent in online programs mounted by majority of African institutions of higher learning, may have to be established. It is instructive that developed countries carry out web-based knowledge assessment of new users or trainees before taking them through online courses (Lichoro, 2015). Such practice may be helpful in the case of African higher education so that students' entry behavior is determined, for instance their levels of digital literacy, to allow for interventions specific to the students' inadequacies.

The answer to the crisis of digital unpreparedness in Africa lay in the capacity development of the aforementioned triad: staff, students, and infrastructure. Universities had a responsibility to develop central digital platforms, train their staff on innovative

educational technologies, synchronize support systems and databases, and develop both digital curriculum tools and course content. It is imperative to acknowledge that majority of the student body, especially in public universities, could not afford devices compatible to virtual proctoring tools necessary for remote supervision of examination. Furthermore, universities and colleges were constrained by financial deficits, making it difficult for them to procure robust digital platforms. A case in point was Kenya, where three public universities—Moi, Kenyatta, and Nairobi—had been directed by the International Monetary Fund (International Monetary Fund, 2021) to cut down staff and do away with some academic and administrative department so that they sustain their operations, in consideration of their increasing financial deficits.

It had been established by a Durham University report (Higgins, 2020) that rushing into a system previously not in place was counterproductive. Some students lacked basic digital literacy, a matter that could be addressed through a basic education program. In Kenya, such a program had been initiated in 2013 (Barasa, 2021) but then collapsed owing to lack of adequate government funding. Whereas the government had promised to supply digital devices to learners, and equally partnered with broadband service providers to realize connectivity and affordable internet for students, this has not happened. Regardless, the new normal required that Kenya, like other African countries, unconditionally align itself with the new reality.

African universities, by and large, had their learning calendars disrupted. This led the African Association of Universities to advise the institutions to adopt alternative educational delivery methods away from the face-to-face one (Association of African University, 2020). Zoom and Google Classroom were recommended, and tutors advised to record class sessions and send the recordings to students *via* email and WhatsApp. Furthermore, they were to resort to Massive Open Online Courses (MOOCS) that matched what they (universities) offered, a move that aimed to cut costs and reduce time as far as design of new online courses and institutional platforms were concerned. The International Association of Universities (IAU) singled out developing African countries as the most affected by the disruption (International Association of Universities, 2020b). Be that as it may, there existed cases that inspired hope. The National University of Lesotho, Lesotho, for instance resorted to its digital version, with its LMS, *Thuto*, and the university's library website and digital content being available online (Mbambo-Thata, 2020). However, the university did not immediately establish whether all students accessed the online sites.

Ghana, situated in West Africa, is reported as one of the countries on the continent with a foothold in online education (Kotoua et al., 2015). Regardless, 50% of learners had no internet connection by the time of the report. In Nigeria, an analytical study concerning online education during the pandemic reported that students were not satisfied with virtual learning (Egielewa et al., 2021), hence did not want it to continue after the disease lapses. This position was informed by the challenges they encountered owing to poor internet connectivity and unsteady electricity. Similarly, a study conducted in five African universities revealed that whereas learners were receptive to online education that had commenced after COVID-19 broke out, approximately 70% of both students and lecturers considered it ineffective owing to lack of supportive milieu: inadequate computers, unreliable electricity supply, poor broadband connectivity, lack of technical support, inadequate technological and pedagogical skills, and lack of relevant policies (Paschal and Mkulu, 2020). If these were addressed, then online education would likely bear desirable education outcomes.

Hence, this paradigm shift and alignment implied that some disruption, albeit momentary, will be witnessed in the education sector. First, quality of education is likely to drop—at least in the intervening period. This paper had already made reference to digitally unseasoned faculty and students, who were experiencing difficulty in adapting to remote delivery modes. The shift to the online mode amidst such unpreparedness would mean that the not-so-ready staff and students would be left behind for a while as they strive to adapt to the new reality. Overall, some studies had generally established that students of whichever geographic extraction tended to record lower achievement scores from online learning compared to in-person experience, in cases where the former were either least prepared or somewhat disadvantaged (Dynarski, 2017).

Second, both faculty and students will develop a major interest in digital literacy, given the necessity of such knowledge and skills. The social distancing health protocols necessitated by COVID-19 have intensified dissemination of information concerning online education solutions, some that were hitherto unknown to Africa. There is a likelihood that faculty and students will be curious to know more, lest they get disadvantaged again. Furthermore, universities and colleges that managed the transition relatively well are likely to attract more students in the future, especially those who are tech-savvy, since this will guarantee the students uninterrupted studies in the event that the pandemic persists, or recurs after dying down. African universities will therefore need to devise contingency plans for any disruptive eventuality, and build digital capabilities that will help them reap the benefits of online education (Muftahu, 2020; UNESCO, 2020).

CONCLUSION

COVID-19 wreaked havoc across the world. Nonetheless, it reminded the education players in Kenyan universities, and African ones in general, on the need to be ready for any eventuality. African governments may be forced to lay firm structures that will support online education so that blended learning becomes the norm. With the latter, it will be possible to switch to the online mode when circumstances such as those occasioned by COVID-19 ensue. Issues of broadband connectivity, electricity supply, subsidies on computer devices, and capacity building among faculty have to be addressed through budgetary allocations. Partnerships with developed worlds are equally important, as demonstrated by Rwanda—a small country that emerged from destruction caused by a 1994

genocide—which is increasingly investing in digital literacy through assistance from Google, among other development partners. When the environment is supportive, this paper has established that both students and lecturers will be receptive of online education. Most importantly, it is highly unlikely that Africa, despite its technological downsides, will revert to purely face-to-face modes of teaching and learning. The least that will be expected is the blended mode, so that the new normal will be characterized by a sustained focus on the huge demand of, and

challenges around virtual teaching and learning, with access to and quality of online education being central.

AUTHOR CONTRIBUTIONS

The author confirms being the sole contributor of this work and has approved it for publication.

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