



Professor Teresa Akenga
Vice Chancellor
University of Eldoret Kenya

Students connecting globally to visualise and re-engineer universities for a better world post COVID-19

Overview

Since its emergence in December 2019 in Wuhan China, COVID-19 has evolved into a pandemic, affecting billions of lives across the globe, causing deaths, illnesses and economic downturn, with Africa and Asia's economies being affected the most. This virus has caused global poverty and education inequalities. Evidence reveals that Covid-19 will likely cause another increase in global poverty since 1998 (Daniel et al, 2020). Estimates further suggest that 49 million people will be pushed to extreme poverty as a result of this pandemic in the current year alone. Out of

these estimates, studies indicated that despite Africa and Asia having been hit relatively less by the virus, over 23 million people from Sub-Saharan Africa and 16 million people in South Asia are projected to be pushed into poverty (Daniel et al, 2020).

COVID-19 Pandemic Effects on Education

Education is one of the sectors heavily affected by the pandemic. The closure of learning institutions across the globe has negatively affected education standards in terms of access, quality, equity and investments. About 258 million children both of Primary and Secondary school age were out of school before the pandemic. However, due to the prevailing status of Covid-19 pandemic, over 1.725 billion children worldwide have been forced to stay at home (UNESCO, 2020). Data from the World Food Programme shows that over 310 million children in low and middle income countries benefited from feeding programmes at school, which boosted enrolment more so for girls, which was vital in alleviating financial strain to poor families and also improved the nutritional standards of children (World Food Programme, 2013). Since the start of the pandemic, increased malnourishment and hunger has been witnessed and this has increased poverty levels across the globe.

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RUFORUM THOUGHT PIECE ON COVID-19

Regardless of the challenges witnessed in the education sector, many governments and education stakeholders have instituted measures to promote continuity of education in the face of this pandemic. However, these measures can only be achieved if student-to-student and teacher-to-student connectivity can be re-engineered to meet the new-normal. This can be attained if institutions can create adequate infrastructure to support remote learning both in urban and rural areas. Learning institutions should come up with new business models that are easier to implement to ensure equity and quality in the education sector. Age and other existing morbidities should be taken into account. Adequate spacing should be adhered to in lecture halls in cases where traditional lectures will take place. Universities' health services should be expanded and mandated to work in liaison with national hospitals in case of any reported cases. Finally, governments should find ways to continue supporting the vulnerable children in order to overcome the effects of Covid-19 on key social and economic indicators within our societies (Nikita, 2020). Governments and other sponsors should re-adjust the funding models, especially for postgraduate studies, to cushion the students whose progress has been affected by the containment measures that were instituted.

Covid-19 pandemic has changed the education system to what is now "the new normal", from the traditional learning methods into the alternative online model of learning. Some of the notable ones include 'Edtech' platforms (Cathy & Farah, 2020). With 4G and 5G internet technology becoming more prevalent in both developed and developing countries, Public-Private educational partnerships will prove vital in re-engineering the new learning methods. This will bring on board publishers, educational professionals, technology providers and telecom network operators, who will tap on the power of digital platforms to revolutionize our learning environment (Gloria & Diana, 2020).

In cases where traditional learning methods will be adopted, measures such as social distance, routine testing and fumigation and high level of hygiene will be adopted in order to mitigate further sporadic rise of the pandemic. However, more learning should be conducted via online platforms such as LMS (MOODLE), BigBlueButton, zoom, Google and Skype and other independent designed online learning platforms to enhance social distancing. Student-teacher interaction in terms of research supervision and internship supervision and will be advanced to remote supervision. Therefore, it is evident that in the new-normal, student connectivity globally will be attained through distance learning programmes, use of high-tech in learning, and the use of available digital tools that can be integrated seamlessly (Gloria & Diana, 2020).

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Generally, as institutions of higher learning, key aspects of our studies such as the traditional student-teacher interactions have been affected. Online learning has affected how traditional practical and laboratory experiments are conducted. The pandemic has hindered students' internship programmes and more so, student exchange programmes. In some practical oriented programs, students and lecturers will have to continue with face-to-face interactions, while strictly adhering to the containment measures.

COVID-19 Effects on University Research and Internship

Limitations on research and internships among universities imposed by the effects of this pandemic has impeded students' engagement globally. At the beginning of the year, universities and students alike were busy reviewing research; internships applications; solidifying projects; preparing logistics and making offers for students to join their respective institutions unaware of the looming impacts that COVID-19 would pose (Valerie et al., 2020).

Nonetheless, this Pandemic has offered institutions of learning new frontiers in research. In order to understand the impact of and control this disease, there is need for more researchers to be engaged in all aspects of virology, epidemiology drug discovery, sociology, ethno botany, among others,

Due to the uncertainty brought about by the pandemic, it is clear that many Universities shut down their normal operations, and cancellations of many programs meant that many students lost the opportunity to enroll in various research programmes and internship opportunities. Universities on their part also lost the opportunity to apply for research funds which are key financial bases for most institutions of higher learning. This will also impact on the number and quality of scholarly publications in most disciplines.

It is evident that for decades, undergraduate internships and research funding for postgraduate students have brought together students for research/ networking experiences which generally enriched their career development. Cohort building, and training in research proposal writing for postgraduate students was a key aspect during normal Universities' operations (Valerie et al., 2020). However, with the emergence of Covid-19, aspects of research and internship both for undergraduate and postgraduate students have been affected. This is because the changes made by major universities in quickly adopting digital learning at the expense of traditional programs meant that aspects to do with internships, practicals and research would be affected all together. This was exacerbated by the international lockdowns. This is due to the fact that,

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universities closure meant that undergraduate internships were no longer feasible whereas institutions and organizations found it unattainable to fund research in a period when all sectors of the economy were affected.

The pandemic changed the way internship and research are conducted, as the implications of hosting students for either research and internship programs who might become ill or might have come into contact with a person suffering from the virus were daunting on the part of Universities and Institutions of higher learning. This therefore, necessitated the need for most institutions to shut down their normal operations.

However, on the positive side, the adoption of digital and remote learning in the new normal will result in fully virtualized internships opportunities and online student engagement in research. Likewise, digital and remote learning will result in virtual professional development which will transform student's internship programmes and also prepare them for better ways of doing their research (Valerie et al., 2020). There will be need to enhance need for simulations, case studies and use of remote sensing (GIS). Robotics and mechatronics will now occupy their much needed space to enhance student connectivity. There will be need to explore the use of modern technology, such as drones in curriculum delivery and connectivity of the global Universities that are likely to emerge from this pandemic.

Universities Response to Covid-19

The outbreak of Covid-19 has disrupted activities in all universities and other institutions of higher learning, across the globe. This has transformed every aspect of university's life from admission, registration, orientation and graduation of the students. The "University Culture "as we traditionally know it from time immemorial has dramatically changed. Majority of Universities in developed countries and those with enough infrastructure in developing countries have transited to remote learning (Andrew, 2020). The only concern emanating from these online-only classes are on the quality of education. This is because online-only classes lack tutor control and full guidance, and this affects performance of students who may be academically weak. Moreover, research has showed that over 20% of university students lack adequate resources to access effective technology and reliable high-speed internet (Andrew, 2020) and that majority of students prefer the face-face learning.

Some universities have therefore opted for independent-designed online learning platforms; rain classroom; distance learning platforms and limited access to university portals for academic

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resources. They have done this in collaboration with local network providers which has improved their online-only classes, thereby increasing teacher-student's interaction. However, it is apparent that most universities will adopt a blended approach to learning, especially for science, engineering and medicine based programmes

The Case of University of Eldoret

In the case of University of Eldoret, all activities were suspended on 16th March 2020 with the exception of the essential services. International students at the university precinct were cushioned from the effects of COVID-19 through proper campus housing, financial aid and routine counselling. Moreover, the University has kept close contact with the student population during this period through the office of the Dean of Students and the Health Clinic, which ensured that there was constant communication with the students. Eventually, the postgraduate students were allowed to resume their research under strict guidelines. As a result, some of them have completed their research and are in various stages of writing their proposals. The University Senate adopted virtual defense of postgraduate theses, and this has gone on successfully. The University has moved almost all its essential operations to online.

However, in terms of adopting virtual and distance learning, the University could not have attained these immediately due to lack of adequate technical infrastructure to support the same. This is also true for most of Africa's higher education institutions where only 29% of universities were able to quickly move to teaching and learning online compared to 89% of higher education institutions in Europe (Marinoni, 2020). University of Eldoret, like two-thirds of African higher education institutes, was not prepared to move immediately to online teaching.

The University Senate has now established Open and Distance E-Learning Programmes (ODEL) to enhance online-only learning in the new normal. Currently, online and remote learning officially commenced for more than 2500 first year students on 28th September, 2020. This was after the students underwent a virtual orientation. Thus, basing on this understanding, as an institution, we are now a step forward towards enhancing virtual and distance learning. This requires heavy financial investment in computers and training of both staff and students. We are using the LMS (MOODLE) and the Big Blue Button softwares. Indeed, the continuing students will be brought on board once we have stabilized the system, preferably in a month's time. However, we intent to adopt a blended approach, since the university is largely a STEM Institution.

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Future of Higher Education Post Covid-19

The future of Higher Education is in for a drastic change post Covid-19. This is because the pandemic has been central in forcing universities to adopt digital technology in offering education. Online-only education is just one step along the new educational paradigm. However, we should expect new models of learning experiences to emerge post Covid-19. The impact has been dramatic and transformative as key stakeholders in the education sector scramble to put in place necessary frameworks to meet the remote teaching and learning agenda in the short-run, more so in developing worlds (Salah-Eddine, 2020).

The real challenge in attainment of excellence in the future of higher education post Covid-19 lies on the reality that traditional campus based universities should be able to adopt the right technologies and approaches for educating their students with modern technologies, keeping in mind the financial implications of setting up such infrastructures. This is because, as of now, video-conferencing platforms and other applications have changed the student-teacher interactions which has offered a new depth of engagement outside the classroom setting. It is evident that the appetite from students for online-only learning is more likely to grow in the near future, hence, it is more accurate to say that the future of Higher Education is more inclined to digital and remote learning. This can be argued based on the adoption of online solutions witnessed in the short term period during the pandemic, which has made many higher education institutions realize that remote learning is just but a baby step experience towards the long journey of offering online education and ensuring business continuity (Salah-Eddine, 2020).

We anticipate enhanced partnership between Universities, online education companies and tech companies in order to enhance adequate infrastructure to meet digital advancement. A new model of collaboration rather than competition should be embraced by all stakeholders within the economy. Therefore, for institutions of higher learning to have better comparative advantages, they should aim at benefitting from the power of digital technology at an affordable rate, and this can be achieved through adequate partnership within their players (Marguerite, 2020). The institutions, especially in Sub-Saharan Africa should develop strategies on student support. The strategies could involve issuance of Tech-loans to deserving students in addition to the tuition fees.

There will be need to adopt digitalization of the internationalised curriculum to meet the new changes in the market. Likewise, to be able to meet the future changes within the higher

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education sector, staff-student exchange and international student tutoring needs to be enhanced through the use of digital technology in order to share knowledge.

It is clear that despite Universities shutting down most of their operations, graduate schools continued to offer teaching opportunities to their masters and Ph.D students through digital platforms as these students had sponsor support and laboratory projects that they needed to conclude. However, most undergraduate programmes were brought to a halt, and only Universities with necessary infrastructure were able to continue offering remote learning. Universities are called upon to be proactive and utilize all necessary resources to enhance digital learning within their environs (Karen, 2020).

Challenges and Opportunities to Emergency Distance Teaching and Learning

Covid-19 pandemic got the world by surprise. Due to this, most institutions were confronted with a sudden and unprepared shift to online teaching models in their response to the need of continued teaching and learning. However, these responses were marred with various challenges.

a) Technical infrastructure and accessibility

Technically, infrastructure and online access are key aspects when shifting to distance teaching and learning. It is clear that Higher Education Institutions failed to meet this prerequisite because our students do not have access to the internet from home. Due to this, as University of Eldoret for instance, we saw it wise not to advocate for an online-only teaching model to enhance equity. Hence we advocate for blended mode of learning. This is because we saw that some students may be disadvantaged more so those from rural areas. However, for posterity, we are currently working in collaboration with key network providers so as to set in place necessary infrastructure to support Open and Distance E-Learning (ODEL) programmes to our key stakeholders.

b) Distance Learning Competences and Pedagogies

It is noted that distance learning and all the aspects to do with an online-only teaching model offers a different learning experience far from the face-to-face learning. The challenge emanates from the transition that faculties need to adopt in order to be ready and prepared to meet these changes in the new normal. Reports from institutions have failed to highlight a management structure put in place highlighting the shift of staff towards online learning. This therefore, poses a challenge to the quality of education being offered via online-only learning

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as compared to face-to-face education. There is need for constant training of faculty and students in order to build their capacity to adopt to the new normal. At the University of Eldoret we saw the need for organization change management training. There was need to train all stakeholders on what to expect in the new normal, retool the academic staff and by so doing improve our curricular content to meet international standards.

c) Field of Study

It is clear that reliance on technical equipment varies from one field of study to the other. This therefore, posits that distance teaching and learning is disadvantageous to some fields of study which require more practical hands on approaches. These fields include Engineering, Clinical Medicine, Veterinary studies, and arts disciplines such as music and design.

Opportunities related to the shift to Distance Learning

Online education models offer enough capacity building for staff and faculty. This is because a shift in mind-set from traditional face-to-face classroom setting to online education models offers new spectrum to university staff thereby opening a new horizon of opportunities for teaching, learning and research in the new normal. The opportunity of working and learning from a distance offers learners an opportunity to access lifelong learning opportunities.

Key Actions to Improve Student Learning and Training

In light of our experience during the COVID-19 pandemic, the four key actions which should be undertaken to improve the student learning and training post Covid-19 are discussed below:

First and foremost, universities must acknowledge the power of digital technology within their environment, and how it has been integral in enhancing remote learning during the pandemic period. Thus, through proper partnership and collaborations, universities need to set up digital learning platforms which will be adequate in offering a digital learning environment for their students to supplement the traditional learning environment.

Secondly, Universities need to enhance guiding and counselling programs which will be adequate to inform the students on the shift of schedules to deal with the new normal and the changes in their traditional learning environments. More so, through these counselling classes, COVID-19 psychosocial counselling need to be advocated in order to demystify the pandemic among the students and staff. This will make them settle in their respective environments seamlessly and take prevention measures to avoid infection.

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Thirdly, it is important for universities to advocate for adequate social distancing in their lecture halls, hostels and even entertainment areas with routine fumigation and advocacy for the wearing of face masks always. This will ensure adequate protection of the students from the pandemic.

Fourthly, Universities should expand and improve their health services and work in close coordination with the respective Ministries of Health and national hospitals in order to report in advance any Covid-19 cases. On the part of the governments, through the Ministry of Education, they need to re-look at the curriculum to ensure digital technology is harmonized in courses so as to enhance digital literacy among students to facilitate student-teacher's connectivity through these digital platforms.

Benchmarking from Countries that Enhanced Student Connectivity during COVID-19

Data from the World Bank indicates that countries are constantly using “Edtech” in order to support student connectivity and access of education during this COVID-19 period. The World Bank is working with ministries of education from dozens of countries to support their efforts to use these educational technologies to provide remote learning opportunities to students during this period (World Bank, 2020).

For instance, in Kenya, student connectivity during COVID-19 period was predominantly for the Primary and Secondary school students which was enhanced through broadcasting corporation (World Bank, 2020). However, student connectivity to re-engineer University education was limited to few Universities that had set forth the necessary infrastructure to meet the e-learning platform within their disposal.

Future benchmarking that countries in sub-Saharan region and developing worlds need to adopt can be seen in the case of countries such as Finland, Sweden and other Scandinavian countries whose virtual learning environment utilized the online learning instruments such as Moodle, Google classrooms, Vile, Teams, 0365, Skype and Zoom which were central in enhancing student connectivity which re-engineered Universities operations during the period.

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Insights, Questions and Challenges of Higher Education Post COVID-19

As institutions of higher learning we are faced with uncertainty and challenges when it comes to the future of education post COVID-19. These uncertainties can be addressed by answering the following questions;

- a) How can Institutions of higher learning advance their operations in the new normal keeping into consideration the impact of this pandemic on the education sector?
- b) What are the most critical changes that we must make as institutions of higher learning to face the future effectively post COVID-19?
- c) How can Institutions of higher learning bring forth necessary advancements (both technically and human support) in order to curtail the sporadic rise/second phase spread of this pandemic within our environments?
- d) How can institutions of higher learning combat the misconceptions people have about the pandemic and enhance a more effective communication on the same?
 - e) What measures should we take as institutions of higher learning to ensure that we curb the spread of this pandemic within our learning environments in the new normal as we maintain our business?
 - f) How can Institutions of Higher learning predict and prepare themselves for any future Pandemics, based on history of pandemics?

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This is our twenty seventh issue in a series of articles we are releasing as part of our RUFORUM Thought Pieces on the Corona Pandemic. This Thought piece is part of the discussion points raised by Prof. Teresa Akenga during the 12th RUFORUM Webinar on “Students connecting globally to visualise and re-engineer universities for a better world post COVID-19” You can get more information about RUFORUM at www.ruforum.org. You may also share your thought piece about the Pandemic with us by writing to e.adipala@ruforum.org and copying m.agen@ruforum.org

About the Author

Prof. Akenga is the first Vice-Chancellor of University of Eldoret. Prior to joining University of Eldoret she served in various academic and administrative capacities in Kenya and Rwanda. She has a wide experience in training, research, leadership, and management. As a leader, She is a Member of various regulatory professional bodies which comprise of the RUFORUM Board Executive Committee, the Forum for African Women Vice-Chancellor, and Organization for Women in Science for the Developing World among others.

She holds a PhD Degree in Organic Chemistry: Synthesis from the University of New South Wales in Australia, Masters of Business Administration in Corporate Governance from Kenya College of Accountancy (KCA) University, Masters of Science Degree in Chemistry and Bachelors of Education in Science Chemistry & Mathematics major from Kenyatta University, Kenya.

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