

Students' Emergency Remote Learning Experiences during the COVID-19 Pandemic Lockdown in a Selected University in Africa

Korso Gude Butucha*

University of Eastern Africa, Baraton

*Corresponding author: bkgude2012@gmail.com

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Abstract Remote teaching is a form of course delivery in which courses originally designed for face-to-face delivery are modified and delivered online to meet an emergency situations [9]. This is the situation in which universities all over the world found themselves at the beginning of the calendar year of 2020 due to the outbreak of COVID 19 Pandemic. The purpose of this study, therefore, is to investigate Students' Remote Learning Experiences during the COVID-19 Pandemic in a selected University in Africa. Quantitative research method was used in gathering, analyzing the data and interpreting the results. The data was gathered online through google forms immediately after the students had completed emergency remote learning and taken the online examinations, while in the COVID-19 pandemic lockdown recess. Respondents were 681 students in a selected university in Africa. They responded to seven questions pertaining to their remote learning experience during the COVID- 19 pandemic lockdown. Results revealed that 87% of respondents were able to access either part or the whole of the materials sent to them remotely by faculty. Only about 13% of respondents indicated that they could not access the online materials. Majority (73%) of respondents indicated that lack of reliable internet connectivity was the main challenge they faced during remote learning. Lack of resources (58.4%), power failure (54.9%), and lack of skills in handling technology (15.6%). Generally, respondents reported mixed feeling of their emergency remote learning experiences. Half of respondents (50.4%) indicated that their experiences were frustrating whereas 32.2% of the respondents indicated that their experience was neither frustrating nor exciting comprised, Only 16.4% indicated that their experience was exciting. 49.8% of respondents prefer blended learning to continue after COVID 19 while 34.5% prefer that the online learning ends immediately and face-to-face classes continue. Very few (15.7%) of respondents prefer that the online course delivery continues even after COVID-19.

Keywords: COVID-19, distance learning, emergency remote learning, online learning, pandemic

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1. Introduction

Although COVID 19 outbreak was reported in late 2019 in China for the first time, in Africa, in general and East Africa, in particular no cases were reported until March 2020. When the outbreak was reported in March 2020, like any other countries in the world, governments in Africa released executive orders to close educational institutions and other businesses to contain the spread of the pandemic. As a result of this, all educational institutions hurriedly closed down campuses while not knowing what to do next. Some institutions tried to shift courses to virtual classrooms as alternative solutions. Others chose to cancel all

face-to-face classes, including laboratories, clinical rotations, field attachments, teaching practices and other learning activities. They required students to study remotely from home to help contain the spread of the virus that caused COVID-19. The United Nations Educational, Scientific, and Cultural Organization [21] estimated that 131 countries had implemented national school closures which affected almost 1,109,020 (63.3%) of the world's student population. According to the [25], by early April, 2020, nearly three weeks after the breakout of the pandemic is reported in Africa many higher education institutions in the world including Africa had closed down and learning was disrupted due to the COVID-19 pandemic. Table 1 below indicates the regional summary of the effects of COVID-pandemic as of early April, 2020.

Table 1. Total affected tertiary education students, by region

	Region	Out-of-school tertiary education students	Total tertiary education students	%
1	East Asia and Pacific	72,391,442	73,538,139	98%
2	Europe and Central Asia	36,948,926	38,030,033	97%
3	Latin America and Caribbean	27,007,997	27,111,868	100%
4	Middle East and North Africa	14,282,666	14,282,666	100%
5	North America	20,640,820	20,640,820	100%
6	South Asia	40,468,782	40,468,782	100%
7	Sub-Saharan Africa	8,399,127	8,533,188	98%
	Grand Total	220,139,760	222,605,496	99%

Adapted from [[25], p. 1].

According to [16], compared to America, Europe and other parts of the world, at early phase, there was relatively lower number of reported COVID-19 cases in Africa. Nevertheless, later on, the virus spread speedily to almost all countries on the continent, and remains a major threat to the continent's health systems. Since then up to the end of June 2020, Africa had witnessed more than 270,000 cases with over 7,000 deaths and over 121,000 recoveries [3]. As of early September 2020, in Africa, COVID 19 affected 47 countries resulting in 1,206,033 cumulative reported cases, and 24,464 deaths [24].

Globally, at least 1.5 billion students (around 90% of the world's enrolled student population) and 63 million primary and secondary school teachers were affected by the unprecedented disruption caused by the COVID-19 pandemic, with school closure in 191 countries. In Africa, 9.8 million students experienced disruption in their studies due to the closure of their institutions [21,18].

According to [18] the main purpose of emergency remote teaching is to provide a quick and temporary solution to an emergency situation and continue instruction by moving the courses originally planned for face-to-face delivery to remote teaching environment. Because of its emergency nature and abrupt change, remote teaching does not provide a strong learning environment.

Since the migration from face-to-face to emergency remote learning/teaching was entirely new experience and the migration was so abrupt, no one was adequately prepared for it, it worth investigating student's emergency remote learning experiences and address some of the underlying challenges in remote learning.

1.1. Significance of the Study

This study is significant to the university administration, students, and faculty in understanding the underlying benefits and challenges of emergency remote learning during COVID-19 pandemic lockdown in order to better prepare for such emergencies in the future.

1.2. Objectives of the Study

The objectives of this study is threefold.

1. To assess how many students were reached through remote teaching and understand the overall emergency remote learning and online examinations experiences of students
2. To investigate the challenges that students have

faced during the emergency remote teaching and suggest ways of mitigating these challenges in preparation for such emergencies in the future.

3. To understand which mode of instructional delivery (face-to-face, online, or blended) is preferable by students so that student centered instructional strategies be devised to meet their needs.

1.3. Statement of the Problem

Like most of the governments around the world, following the outbreak of COVID-19 pandemic, many governments in Africa released executive orders to temporarily close some businesses and educational institutions in an attempt to contain the spread of the virus. COVID -19 pandemic is a new phenomenon which resulted in an abrupt closure of institutions. The nationwide closure of universities impacted both students and faculty. In order to cope with the impacts of the pandemic and continue learning during the lockdown some institutions quickly moved to adopt various technologies in remote teaching to complete the syllabus prepared for face-to-face teaching. Since the pandemic is new, the closure of universities is abrupt, and remote learning is entirely a new experience, there may be a limited or no research conducted to address student experiences in emergency remote learning. Thus, this study is to investigate and understand the emergency remote learning experiences of students during COVID-19 pandemic in a selected university in Africa.

1.4. Research Questions

To investigate and understand better the above problem, the following four research questions were posed to the respondents.

1. How many of your courses were you able to access during the emergency remote teaching and what remote teaching methods did your faculty use the most during the COVID-19 lockdown?
2. What was your emergency remote learning experience during the COVID-19 lockdown and the challenges you faced in accessing the remote teaching resources?
3. What was your overall emergency remote learning and online examination experiences during the COVID-19 lockdown?
4. What is your preference if the pandemic is over?

2. Literature Reviews

There are several modes of teaching and learning that are related to remote learning. These include: emergency remote, distance, and online teaching and learning. The emergence of COVID-19 pandemic has led to rapid deployment of eLearning technology solutions to fill in the gap created by the cessation of regular mode of learning. In response to this global crises of closure of educational institutions, emergency remote teaching in the form of virtual learning, online lessons distance learning, radio/television or blended learning are possible options to ensure continuity of learning [18].

Also known as distance learning, correspondence learning, and online learning, distance learning, is not a new concept. The history of distance learning dates back to the late 18th century [22] Early distance learning took place through correspondence like print or electronic communications media such as radio and television whereas the current trend shows many emerging communication technologies, and telecommunications such as internet and wireless systems which can be used for remote learning [1,4].

Distance education is the forerunner of the present day online learning. According to some scholars, the first generation of distance education used print technology where print educational materials were dispatched to the students through postal services [2]. This later followed by the second and third generation of distance education which used the broadcast technologies using radio and television, and later on synchronized and asynchronized teleconferencing facilities such as audios and videos to reach students who were not able to get access to schools or colleges [2].

Distance education has gone through tremendous transformation into what we refer to as online learning, electronic learning, or mobile learning, all of which use the modern technologies to reach the vast majority of students who learn at their own pace while away from campuses [9].

Online teaching/learning is an intricate process that involves purposeful and careful planning, designing and determination of aims and objectives, and delivery of instructions in order to create an effective learning environment to students who are located in different places and perhaps times [18].

Although online education in Sub Saharan Africa is lagging behind [13], COVID-19 has created an unprecedented interest in online education. It has not only taught us a great lesson to embrace technology in delivering instructions remotely/online but also has forced us to think digitally, shift to online platforms,

and learn new ways of living and doing things. It has also taught us get ready for any eventualities. The paradigm shift brought about by COVID-19 on the teaching and learning will remain with us even after the pandemic is over. Integration of technology in delivering instructions will be the characteristics of the post COVID-19 education.

2.1. Emergency Remote Teaching vs Online Teaching/Learning

Generally, the situation in which students and teachers are not present in a face-to-face classroom environment is called online or virtual teaching/learning. A common feature of virtual teaching/learning, whether it is distance, correspondence or online is that the students and teachers are located in different places and time [14]. However, it should be noted that “well-planned online learning experiences are meaningfully different from courses offered online in response to a crisis or disaster.” [9], p.1]. The later is called emergency remote teaching. Emergency remote teaching is a form of course delivery in which courses originally designed for face-to-face delivery are modified and delivered online to meet an emergency situations [9]. Distance and virtual/online learning are well planned and designed learning experiences to reach students located away from the campus while emergency remote teaching/learning is a temporary approach to teaching and learning during an emergency or crisis to deliver instruction which is originally planned to be delivered face-to-face [9].

According to [18], the main purpose of emergency remote teaching is to provide a quick and temporary solution to an emergency situation and continue instruction by moving the courses originally planned for face-to-face delivery to remote teaching environment. Because of its emergency nature and abrupt change, remote teaching does not provide a strong learning environment. The two scenarios are summarized in the Table 2 below.

To accommodate the new ways of delivery, emergency remote teaching/learning involves many adjustments of how to communicate with students, how students interact with each other, how the students access the materials, ask questions, submit their assignments, and engage in discussions. In order to meet the needs of various students in accessing the remote teaching it is necessary to adapt various technologies. This adaption of technology in emergency remote teaching and learning required an exploitation of an existing skills as well as develop new skills and innovative approach to adhere to quality standards and guidelines.

Table 2. Comparison of Emergency Remote Teaching and Online Teaching/Learning

	Emergency Remote Teaching	Online Teaching/Learning
1	Activated in response to a crisis or something beyond human control	Designed purposely to be remote and distant
2	Happens without warning	Regarded as a main mode of education (not an exception)
3	Meant to be temporary	Meant to be a long-term solution
4	May lack resources	All resources are accessible
5	Temporary solution to an immediate problem	Not urgent
6	Some resources may/may not be accessible	Accessible and voluntary
7	May not have full faculty support	Has full faculty support
8	Students may not have a choice	Students are voluntarily enlisting

Adapted from University of the people Education Revolution (<https://www.uopeople.edu/blog/emergency-remote-teaching-vs-online-learning/>).

2.2. Online Examinations

Institutions of higher learning have policies to guide in security measures for writing traditional examinations. However, ensuring the integrity and security of online examination is so complex in that students are not at close proximity with the invigilator making it difficult to control student behaviors during the examinations [5]. The main challenges are maintaining security and integrity of online examinations. However technology has provided solutions to such challenges. Using various available software, examination invigilators can authorize and authenticate the real identity of students who take the online examinations.

Some software do not use passwords alone but also make use web cameras which capture student behaviors at regular intervals while the proctor from a centralized place monitors the process of examinations. But drawback of this system is that it is difficult to monitor the image of every examinees. Some systems make use of biometrics to check and verify the identity of the student by taking finger prints [5]. Software such as Respondus Lockdown Browser and screen monitor have the capacity of recognizing faces and recording student behaviors during the examination to authenticate the students during the online examination.

The Respondus Lockdown Browser is a custom browser that locks down the testing environment for Moodle, Blackboard and other LMSs to protect integrity and ensure student identity during examinations. In order to use it during examinations, the lockdown browser must be enabled, and students install it on their laptop/desktop computer connected to a webcam camera and then use it to log in to the LMS to take the examination. During the examination writing, the student will not be able copy, print, access other applications, visit other websites, or close the test until it is submitted.

At the end of completing the emergency remote teaching, the university in this study purchased the Respondus Lockdown Browser and Screen Monitor for online Examination proctoring and monitoring. This software was used for examination supervision and monitoring to ensure credibility and integrity of examinations at the highest level. 74% of all registered students were able to write their final examinations during the emergency remote teaching. Those who were not able to take the examination mentioned challenges with internet connectivity, lack of gadgets, power failures, difficulty with Respondus Lockdown Browser and Screen Monitor.

3. Methodology

Quantitative research method was used in gathering, analyzing the data and interpreting the results. The data was collected immediately after the students have completed their remote learning and taken the online examinations, while still in the COVID-19 pandemic Lockdown. Since all students were away from the university, an online survey was the only effective way of administering the questionnaire to collect data. Thus, an online survey was sent out in google forms to all

registered students out of which only 681 responded to the survey questionnaire. Respondents were given clear instruction and adequate time to complete the questionnaire. Follow up reminders were sent to them in order to increase the response rate. Participation in the survey was voluntarily and the information received were confidential and no individual identity was known since the questionnaires were sent to a group email address.

Using excel for Windows version 10, statistical analysis of the data was done. Descriptive statistics such as frequency, and percentage were generated for population of the study in terms of all the seven questions.

4. Findings

Although online education in Sub Saharan Africa is lagging behind [13], COVID-19 has created an unprecedented interest in online education. It has not only taught us a great lesson to embrace technology in delivering instructions remotely/online but also has forced us to think digitally, shift to online platforms, and learn new ways of living and doing things. It has also taught us get ready for any eventualities. Thus, this study addresses this new experience. The first question dealt with demographic variables and the rest of the questions dealt with students' emergency remote learning and examination experiences.

As indicated in Table 3, majority of the respondents were male (60.7%) followed by females (33.7%) while about 5.6% of respondents did not prefer to indicate their gender. When years of study is considered, there is a fair distribution of respondents according to their enrollment, consisting of 23.6% freshmen, 23.3% sophomores, 27.7% juniors, and 25.4% seniors. The distribution of respondents according to the schools is also fair according to the sizes of the schools, from the largest to the smallest being 30.2% school two, 27.8% school one, 22.8% school five, 13.2% school four, and 6.0% school three.

Table 3. Demographic Information of Respondents

Variable	Category	f	%
Gender	Male	410	60.7%
	Female	228	33.7%
	Prefer not to say	38	5.6%
	Total	676	100%
Year of study	Freshman	159	23.6%
	Sophomore	157	23.3%
	Junior	187	27.7%
	Senior	171	25.4%
	Total	674	100%
School	One	189	27.8%
	Two	206	30.2%
	Three	41	6.0%
	Four	90	13.2%
	Five	155	22.8%
	Total	681	100%

The experiences of the respondents in regard to the emergency remote teaching/learning during the COVID-19 Pandemic is summarized in Table 4 below. Discussions of the analysis follows.

Table 4. Remote teaching/learning experiences of respondents

	Questions	Responses		
1	Which method was used the most in remote teaching?	University LMS/Moodle (73.1%),	WhatsApp (72.7%).	email (39.2%)
2	How many courses were you able to access remotely?	Some of the courses (47.1%)	All of the courses (39.9%)	None of the courses (12.9%)
3	What challenges did you face during the remote learning?	Lack of reliable internet connectivity (73.0%).	Lack of resources (58.4%),	Power failures (54.9%)
4	What is your overall experience in remote learning?	Frustrating (50.4%)	Exciting (16.4%)	Neither frustrating nor exciting (33.2%)
5	How were you able to access your online examinations?	Borrowed laptops/desktops (41.7%)	Personal laptops/desktops (33.8%)	Cybercafés 18.2%)
6	What was your online examination experiences?	Frustrating (52.1%)	Exciting (15.4%)	Neither frustrating nor exciting (32.5%)
7	What is your preference if the pandemic is over?	Blended learning (49.8%)	Face-to-face (34.5%)	Online (15.7%)

According to the survey the most common learning method used by the faculty in delivering remote teaching was the university LMS/Moodle (73.1%), followed WhatsApp (72.7%). Other methods used by the faculty included email (39.2%), Zoom (30.0%), BigBluButton (25.3%), and phone calls and SMS (9.0%).

The higher percentage of the university LMS/Moodle usage may be attributed the fact that the university has been training the faculty on the use of Moodle platform for the last three years and this gave the opportunity to the faculty to quickly adopt to the system during the COVID-19 emergency, and also the university integrated the Respondus Lockdown browser and screen monitor for examination proctoring and all students wrote their final examination using the university LMS/Moodle. Otherwise because of its user friendly nature and easy accessibility even on the smart phones, WhatsApp is widely used applications by both the faculty and students in their daily activities and was not difficult to use it for remote teaching and learning. The study by [14] in Indonesian universities also revealed that “WhatsApp is a prevalent medium” used for teaching and learning purposes.

In regard to accessing the courses online during the remote learning, 47.1% of all respondents indicated that they were able to access some of their course online during the remote teaching whereas 39.9% indicated that they were able to access all of their courses online. Only 12.9% of respondents indicated that they were not able to access any of their courses. When put together those who were able to access some of the courses and all of the courses online, they comprise the majority (87%). This is very encouraging and shows how all stakeholders quickly embraced the change, because, the university suspended the traditional face-to-face teaching abruptly and neither the faculty nor the students were ready to adopt remote teaching at that particular moment. Those who were not able to access any of materials online indicated that internet access or connectivity was the main challenge (51.1%), followed by lack of resources (37.5%) and power failures (11.4%). These challenges are obvious because no one was prepared for the abrupt changes.

According to this findings, the main challenges that the students faced when accessing the remote teaching were lack of reliable internet connectivity (73.0%). This finding is similar to the findings of [6] who noted that internet access was more of a problem than hardware/software problems in the US, and [14], who reported that

technological disruption and expensive internet costs were the main challenges in accessing the online materials in Indonesian universities. [10], p. 1], have also reported that “internet connectivity, access to computers and digital devices, being unfamiliar with Moodle and integration, technophobia and limited skills in using ICT for learning, and low awareness of OER in Zanzibar”. Similarly [13], stated that Africa is lagging behind in internet use. Only 5.7% of the total population in Africa get access to internet while internet users in other countries comprise 94.3 % of the total population. The scarcity of internet connectivity makes online education in sub Saharan Africa unpopular. Other similar findings by [23], 50% of students worldwide do not have household computer, 43% do not have household internet. The same findings revealed that in sub Saharan Africa, 89% of students do not have right to use home computer, 82% do not have internet access, and 11% are not covered by mobile networks.

Respondents in this study also indicated other problems such as, lack of resources (58.4%), power failures (54.9%), and lack of technology skills (15.6%). In the selected university in this study, these findings are not surprising because previous studies show that not many parts of the Sub Saharan Africa get access to internet, can afford to own personal gadgets, and electricity. [3], p. 9] confirmed this by stating that “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.” [17] also noted that power disruption is the main challenges for big businesses in African continent.

In regard to online examinations, 41.7% of respondents indicated that they took their examinations using borrowed laptops/desktops, 33.8% took their examinations using personal laptops/desktops while the remaining 18.2% took their examinations in cyber cafes. From this it can be concluded that the main challenges of students was lack of resources and facilities. This finding is similar to the findings of [14] in Indonesian universities.

When asked about their general experience of remote learning and online examinations during the COVID-19 lock down, half of the respondents (50.4%) indicated that their remote learning experiences and (52.1%) their online examinations experiences are frustrating. Those who indicated their remote learning and online exemptions as exciting comprise 16.4% and 15.4% respectively while

those who have indicated that their remote learning and online examinations experiences are neither exciting nor frustrating composed of 33.2% and 32.5% respectively. From this it can be concluded that generally students are not happy with the remote learning and online examinations.

Similar studies by [13], in Ghana [14], in Indonesia [15], in Austria, and [12] in Australia also reported that due to technical issues, communication challenges, and lack of adequate preparations by both students and faculty, online learning is stressful challenging, and frustrating. Thus, it can be implied that students feel more comfortable with face-to-face learning and examinations than online because when faced with difficulties, they can get instant help from their faculty or classmates.

Finally, when asked about their preferences between online and face-to-face learning, 49.8% of respondents prefer blended form of course delivery to continue after COVID-19 while 34.5% of the respondents prefer that the online learning ends immediately and face-to-face to continue. Only 15.7% of respondents prefer that the online course delivery continues even after COVID-19. Blended learning is also preferred mode of leaning in Ghana [13,19], Indonesia [14], Austria [15], and Australia [12].

Similarly, the study by [8], in 118 institutions and 40,000 students in the USA revealed that 70% of students preferred the face-to-face learning completely or partly while about 56% of respondents preferred the blended learning and only 9% preferred fully online. Another study by [7] in 119 institutions in the USA and 9,500 faculty members revealed that 73% of faculty preferred either fully or partly face-to-face teaching while 51% of faculty preferred blended teaching and only 9% preferred to teach fully online.

Some studies revealed that students prefer face-to-face learning to online [13]. The study by [11] in the USA, [15] in Austria and [12], on Australian students also revealed that students prefer face-to-face learning to online learning.

From these it can be concluded that although online learning is the trend of the 21st century method of learning, physical presence of faculty and instructions with peer have more impact than virtual presence. Also it can be implied that the students enjoy learning when they are together with their classmates. Thus, face-to-face combined with some aspects of online instructional delivery is the most preferred mode of learning.

5. Conclusions and Recommendations

The following conclusions can be drawn from the findings of the present study. Majority of students were able to access the remote learning materials in one way or another through the university LMS/Moodle, WhatsApp and other media. Lack of reliable internet connectivity, resources such as personal laptops/desktops, power outage were the main challenges in accessing the remote learning materials. Students have a mixed feelings about their overall emergency remote learning and examinations experiences. Half of them indicate their emergency remote learning and online examination experiences are frustrating. Majority of students prefer blended learning followed by face-to-face. Those who prefer purely online learning are very few.

The study recommends that universities must rethink about the future of education and make conscious efforts to integrate technology in providing equitable and accessible blended learning. To achieve this it is important that universities invest on pedagogical and technological skills development of its faculty so that they develop, skills, competence and confidence in technology integration so as to get ready for any form of emergency such as famine, war, or any natural disaster that may disrupt learning in the future. Universities should also work with governments and service providers to make internet more affordable and accessible to students. Parents need to work with the government agencies and other stakeholders to provide the learning devices such as laptops to students at affordable cost.

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