# COVID-19 EDUCATIONAL DISRUPTION AND RESPONSE: RETHINKING E-LEARNING IN UGANDA

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# Abstract

*Public health emergencies affect the education and safety of children in several ways. Due to the Ebola outbreak in West Africa, for instance, the education of 5 million children was interrupted.- School closures across Guinea, Liberia and Sierra Leone between 2014 and 2015 made it difficult for the governments of these countries to find alternative ways to provide continued education, resulting in many children dropping out of school. The current pandemic has forced most governments around the world to temporarily close educational institutions in an attempt to contain the spread of the coronavirus (COVID-19) pandemic, impacting over 91% of the world's student population according to UNESCO. Uganda, amidst its economic challenges, the unforeseen situation of the COVID-19 pandemic is another turn of the screw in the education situation of its school-going age population. This research looks systematically at the opportunities and challenges of diffusing e-learning in the context of Uganda, where the vast majority lack basic needs for livelihood and access to the internet is a problem.*

# Table of Contents

# Introduction

In the wake of the coronavirus (COVID-19) pandemic, lockdowns are key to controlling the virus' spread. Although lockdowns are effective in enforcing social distancing measures and tracing of COVID-19 patients, they are not good for education and the economy. Uganda has recognised education as a powerful tool for social, economic development and transformation since the early years of political independence. It is highlighted that education had been considered critical for the achievement of national unity, democracy and social justice for all citizens.[1]  Likewise, Uganda's vision 2040 recognises education as a key endogenous driver of economic growth, providing human capital development needed to strengthen and to accelerate the country's transformation and harness the demographic dividend.[2]

Yet, the evolution of Uganda's education from primarily learning the patterns of accepted economic, social, and political behaviour from parents and the community within the various tribal groups to global education systems prevalent in the 21st century is still on-going and the journey is mired with several challenges. The progress notwithstanding, the education system has struggled to transition from missionary and colonial education since the country's independence in 1962.[3]

Notably, studies show that missionary schools like Namilyango High school opened in 1901 by the Mill Hill Fathers; Mengo High School (for boys), Gayaza High school (for girls) and King's College Budo opened in 1904, 1905 and 1906 respectively by the church missionary society; became a prototype of many other schools.[4]  The curriculum, designed primarily to educate potential leaders (children of chiefs and influential members of society), was mainly academic, with a heavy emphasis on classic subjects of Mathematics, English Language and Literature, Sciences, Latin (in some schools), History and Geography.[5]  And the mode of transfer was classroom-based with authoritarian, teacher-dominated and lecture-driven pedagogical practices. [6]Several ambitious educational reform programmes to move away from teacher-centred instruction to child-centred pedagogy, encompassing reforms in teacher training, curriculum development, the supply of instructional materials, language policy, Universal Primary and Secondary Education, have been undertaken since the mid-1990s.[7]

[1]Higgins, L. and Rwanyange, R. (2005) 'Ownership in the education reform process in Uganda', in.  Taylor Compare& Francis Group , pp. 7–26.

[2]Uganda Vision 2040, Chapter 5: Social Transformation, subsection 5.3

[3]Sidonia A., Ochieng and David C., Waiswa (2019) 'Pastoral education: The missing in in Uganda education system', in Educational Research and Reviews, Vol.14(7), pp.240-253

[4]Scanlon, D. (1964) Education in Uganda

[5]Ssekamwa, J. C. (1997) History and Development of Education in Uganda (Fountain Publishers, 1997, 245 p.): 12. Development of Education 1962-1990, Fountain Publishers.

[6]Khadidja, D. (2014) Western Education in Uganda (1878-1939).

[7]Kosar Altinyelken, H. (2010) 'Pedagogical renewal in sub-Saharan Africa: the case of Uganda', in Taylor& Francis Group, pp. 151-171.DOI: 10.1080/03050061003775454

Despite efforts made to incorporate ICT into mainstream curriculum, Uganda's education system is still rooted on the traditional rote learning approach with very limited scope for the application of concepts, and least of which is the problem of access to modern technology platforms to keep pace with learning and teaching in the 21st century.Uganda's education system continues to confront three key challenges at all education levels: access to, quality of, and relevance of education. And COVID-19 demands that we rethink the trajectories to diffuse e-learning or any other means to augment or replace our traditional classroom-centric educational delivery systems.

## Methodology

The approach to methodological enquiry for this study is based on secondary research using electronic databases, grey literature, reference harvesting and discourse analysis, with weighted critical balanced viewed on the most suitable way forward. In this vein, the research is focused on the current state of the country's education (using documentary evidence) in comparison to recent updates in the world of electronic/virtual learning.The scope of the study is to assess the state of evidence for three research questions:

1. What is the current state of Uganda's Education systems?
2. What is the impact of COVID-19 on Uganda's Education Systems?
3. What are the opportunities and barriers to diffusing e-learning in Uganda's Education System during the COVID-19 pandemic and the future?

## Overview of the Uganda Education System

The system of education in Uganda has a structure of seven (7) years of primary education, six (6) years of secondary education (divided into 4 years of lower secondary and 2 years of upper secondary school), and three (3) to five (5) years of post-secondary education. Students have a wide range of options between private and public education institutions depending on their aptitude, ambitions and resources.

## *Early Childhood Development*

Uganda launched the National Integrated Early Childhood Development (NIECD) Policy in 2016. The associated Action Plan is a comprehensive approach designed for children from conception to eight years of age, their parent and caregivers purposely to help the child grow and thrive physically, mentally, emotionally, spiritually, morally and socially.[8] Most of the Nursery and Daycare centres in the country provide pre-primary education for children aged 3-5 years. The Vision of the NIECD Policy is that all children in Uganda from conception to 8 years of age grow and develop to their full potential (UNICEF Uganda, 2016). It is hinged on Sustainable Development Goals 4 (SDG4) specifically target 4.2 which states that 'by 2030, ensure that all girls and boys have access to quality early childhood development, care and pre-primary education so that they are ready for primary education'. Provision of pre-primary education is exclusively private sector-led, with the public sector only providing an enabling environment (i.e. policy, legal and regulatory framework, inter-sectoral coordination mechanisms, finance, monitoring, inspection and support supervision).[9]

## *Primary Education*

Primary education is the largest sub-sector of education in Uganda in terms of enrolment, human resource requirements and the budget.[9] It has a seven-year cycle, that is Primary one (P.1) to Primary seven (P.7).

Universal Primary Education (UPE) was introduced in 1997 to expand access to basic education, and to ensure all girls and boys complete free, equitable and quality primary education leading to relevant and effective learning outcomes. The Education Act of 2008 spells out the government commitment to provide learning and instructional materials, structural development, meeting the welfare of the teachers, and curriculum development and control. In the same vein, parent's role includes registering the child of school age at school, and providing guidance and psychological welfare, food, clothing, shelter, medical care and transport among others, to their children.[10]

[8]NIECD Secretariat (2018) NIECD Newsletter:Issue 004. 004. Available at: https://www.unicef.org/uganda/media/1671/file/NIECD newsletter (No.4).pdf
[9]UBOS (2017) EDUCATION: A MEANS FOR POPULATION TRANSFORMATION.
[10]Govt. of Uganda (2008) Education (Pre-Primary Primary and Post-Primary) Act 2008. Kampala, Uganda: Uganda Law Reform Commission. Available at: https://www.ulrc.go.ug/content/education-pre-primary-primary-and-post-primary-act-2008

Constitutionally, the provision of primary education is mostly public-led complemented by the private sector (for-profit).[11] Under the UPE programme, the Government of Uganda abolished all tuition fees and Parents and Teachers Association charges for primary education. Following its introduction, gross enrolment in primary school increased over the years. However, access has not been matched with quality and learning outcomes are low, with many pupils finishing the primary level without basic literacy and numeracy skills.[12]

## Secondary Education

Options for primary school completers include either proceeding with secondary education, three-year crafts course in a technical school or joining the labour market. Therefore, Secondary Education is the 2nd largest sub-sector of education in the country.[9]

Secondary education is provided through a network of schools that are either Government-owned, private sector-owned or community-owned. Government schools comprised a mix of schools established by the government and grant-aided schools that were once community-owned but have been taken over by the government. Private secondary schools are funded and owned by private individuals, community, religious bodies or NGOs.[9]

Secondary school is divided into - Lower/ Ordinary level ("O" level) and the Advanced level ("A" level). At the end of the 4 years of "Level, students take the Uganda Certificate of Education (UCE) national examination.

In response to the surge in enrolment occasioned by the introduction of UPE, Uganda implemented the Universal Secondary Education (USE) and Universal Post 'Level Education and Training (UPOLET) respectively. And in 2007, Uganda became the first country in sub-Saharan Africa to introduce universal secondary education. Under the secondary scheme, students who get specific grades in each of the fourprimary school-leaving exams study free in public schools and the USE participating private schools.

## Business Technical and Vocational Education and Training Level

Business, Technical, Vocational Education and Training (BTVET) is an integral part of Post Primary Education and Training (PPET). It constitutes both the second and third levels of the education system.

[11]Govt. of Uganda (1995) Constitution of the Republic of Uganda, 1995. Uganda Legal Information Institute. Available at: https://ulii.org/ug/legislation/consolidated-act/0

[12]Ahimbisibwe, P. (2013) '90% UPE pupils can't read - report', Daily Monitor, December Available at: https://www.monitor.co.ug/News/National/90--UPE-pupils-can-t-read---report/688334-2109860-taxsf5/index.html; Mafabi, D. and Mbabaali, D. (2017) 'Uganda second in world with pupils who can't count - study', Daily Monitor. Available at: https://www.monitor.co.ug/News/National/Uganda-second-world-pupils-who-can-t-count--study--/688334-4120526-1btrjb/index.html

The BTVET second level education system is comprised of those technical and farm schools that are at the secondary school level, that is, those that admit P.7 completers, while the third level BTVET education system is comprised of those institutions which admit "O" level as well as "A" level secondary education completers. The BTVET sub-sector is exceedingly diverse with education and training institutions spanning from business, health, and agriculture, technical, vocational to paraprofessional fields. [9]

## *Tertiary Education Level*

The tertiary education level in Uganda is comprised of two categories: - namely degree-awarding universities and 'other tertiary institutions' - the technical sub-sector which offer diplomas and certificates. Both Universities and "other tertiary Institutions' are further categorized into public and private. While public universities/ institutions are established by an Act of Parliament, private universities/Institutions are chartered, licensed or unlicensed. The duration of tertiary education ranges from two to five years depending on the duration of the course enrolled for.[9]

## *Non-Formal Education*

Non-Formal Education (NFE) aims to fulfill the educational needs of people who are not in the regular education system by using tailor-made approaches to cover literacy, life skills, continuing education, equity education, and income generation. The major activities implemented under the NFE programme are a basic literacy campaign, continuing education, community learning centres, equivalency programmes, and  non-formal primary education.[9]

# Impact of COVID-19 on Uganda's Education System

As the COVID-19 pandemic snowballs, the day-to-day reality has created a nightmarish situation in developed and developing economies. Although to date Uganda has less than 100 confirmed cases with zero deaths, the numbers of those acquiring the virus and associated death globally is alarming. The impact of the pandemic is already taking a toll on communities already vulnerable or marginalized – the poor, the rural, the illiterate, women and girls. And similarly, to the Ebola epidemic in West Africa, education has been one of the first causalities.

His Excellency the President of the Republic of Uganda on Wednesday 18th March 2020 addressed the nation on coronavirus.[13]  In his address, he noted that zero registered cases in Uganda at the time notwithstanding, the volatility of the virus demanded that we take preventive measures to avoid acquiring and spreading it. To this effect, all Primary and Secondary Schools, as well as all Universities and Tertiary Institutions, were to close by mid-day 20th March 2020.[14]  According to the Ministry of Education, more than 73,000 learning institutions closed, and consequently, 15 million learners and 600,000 refugee learners are out of school.[15]

Without a vaccine for the virus, the end of social distancing measures is uncertain, affecting reopening of schools and could lead to a very disruptive stop-go period during recovery, with schools reopening and then closing. With children out of school indefinitely, COVID-19 threatens to reverse years of educational progress in Uganda where daunting challenges remain and the country's education system is still confronting three key challenges: access to, quality of, and relevance of.[16]

There is an urgent need to provide visionary solutions to mitigate the looming social and economic challenges ahead. Exacerbated socio-economic hardships imposed on households by the health crisis will have ripple effects as families consider the financial and opportunity cost of education.[17]  Dwindling incomes due to prolonged lockdown could mean that large numbers of children will never return to the classroom. There is overwhelming evidence the longer children are out of school, the greater the risk of violence, rape, child marriages, child labour, prostitution and other life-threatening often criminal activities.[18]

There is a window of opportunity to set-up learning systems that could enable the continuation of education through innovative and distance approaches.

[13]New Vision (2020a) 'As It Happened | Museveni Address On Coronavirus', New Vision. Available at: https://www.newvision.co.ug/new_vision/news/1516707/-live-museveni-addresses-nation-coronavirus

[14]New Vision (2020b) 'Museveni Closes Schools, Suspends Church Congregations', New Vision. Available at: https://www.newvision.co.ug/new_vision/news/1516721/museveni-closes-schoolssuspends-church-congregations

[15]Ssebwami, J. (2020) 'FULL SPEECH: Education Minister Janet Museveni orders on school term, tertiary institutions', Post Media(PML) Daily. Available at: https://www.pmldaily.com/news/education/2020/04/ full-speech-education-minister-janet-museveniorders-on-school-term-tertiary-institutions.html

[16]Caerus Capital (2017) THE BUSINESS OF EDUCATION IN AFRICA. Durban. Available at: www.caeruscapital.co;Muwagga, A. M., Itaaga, N. and Wafula, W. S. (2013) 'Challenges to Quality Primary and Secondary Education in Uganda', Zimbabwe Journal of Educational Research, 25(3). Available at: https://www.ajol.info/index.php/zjer/article/view/97003

[17]UNESCO (2020b) School closures caused by Coronavirus (Covid-19).Available at: https://en.unesco.org/covid19/educationresponse

[18]UNESCO (2020a) Covid-19 school closures around the world will hit girls hardest.Available at: https://en.unesco.org/news/-covid-19-school-closures-around-world-will-hit-girls-hardest

# Learning 'using' technologies in Uganda: Opportunities and Barriers

Innovative and distance approach to education is synonymous to learning 'using' technologies in the 21st century.[19]  Learning technologies, that is, print-material, radio, television, video, audio, telephone, computers and the internet – appear to offer an answer to not only enabling learning to continue where education has been disrupted but also to offer opportunities for overcoming geographical access and rigidities of conventional education.

However, with 80% of Uganda's school-age children and youth living in rural areas characterised with lack of basic living resources and underdeveloped educational and supporting infrastructure[20] , does the difficulty of accessing learning technologies and the digital divide between privileged and deprived groups continue to widen the educational gap?

That question goes to the heart of the challenge of keeping children learning even in the face of the COVID-19 pandemic and is the focus of this study. It is a vital question for Uganda, a country with one of the youngest populations in the world.[21]  Failure to deliver this basic right in emergencies and beyond means millions of young people across generations will continue to shoulder the burden of our inaction.

Education must remain a priority. Securing the continued provision of education during the COVID-19 pandemic is not only important – it is a necessity to control the spread of the virus and facilitate the rebuilding process.

This is not an easy challenge and the solutions required may seem intractable and overwhelming. Nevertheless, this study serves as a contribution to efforts to highlight the opportunities and key challenges or barriers Uganda faces in trying to diffuse technology-based learning to reach its populace and address issues of poverty and educational access.

## *Uganda's capacity for distance learning and the use of mass media*

The National IT survey 2017/2018 found that 65.3 % of Ugandan households owned a radio, 21.8% owned a Television set, 5.9% had access to a computer at home, 10.8% of households owned a household telephone, and 10.8% of all households had at least one member who had Internet access.

[19]Gulati, S. (2008) 'Technology-enhanced learning in developing nations: A review', International Review of Research in Open and Distance Learning. doi: 10.19173/irrodl.v9i1.477; Kirkwood, A. and Price, L. (2014) 'Technology-enhanced learning and teaching in higher education: what is "enhanced" and how do we know? A critical literature review', Learning, Media and Technology. Routledge, 39(1), pp. 6–36. doi:10.1080/17439884.2013.770404.
[20]UNFPA (2018) Uganda's Youth Population. Kampala, Uganda. Available at: https://uganda.unfpa.org/sites/default/files/-pub-pdf/YoungPeople_FactSheet %2811%29_0.pdf
[21]Patierno, K., Kaneda, T. and Greenbuam, C. (2019) 2019 World Population Data Sheet, Population Reference Bureau. Washington, DC. Available at: https://www.prb.org/worldpopdata/

Of the households with internet access, 99.1% used their mobile phones to access the Internet. The survey also found that overall, 70.9% of all individuals owned a mobile phone.[22] Figure 1 below shows a summary of the household indicators.



**10.8%**
Of all households, had at least one member
who had Internet access at home

**20.0%**
Of households with Internet access,
used USB/modem dongle via laptop
or computer to access Internet

**13.4%**
Of households with Internet access,
used mobile phone as hotspot via
laptop or computer to access Internet

**65.3%**
Of all households, owned a radio at home

**21.8%**
Of all households,
owned a TV at home

**17.3%**
Of all households, subscribed
to Pay TV

**99.1%**
Of households with Internet access,
used their mobile phones to access the Internet

**5.9%**
Of all households, had access to a computer at home

**8.0%**
Of households with Internet access,
reported having members below 15
using the Internet at home

**3.3%**
Of all households, had a
household member that
owned a computer
at home

**2.6%**
Of all households, had a
household member that had
access to a computer at home

**2.5%**
Of households with no Internet
access, indicated having previously had
an Internet connection

**89.2%**
Of all households, did not
have Internet access at home

**10.8%**
Of all households, owned a household telephone

**54.8%**
Of households with no internet access,
indicated "Lack of confidence,
knowledge or skills to use the Internet" as reason

**10.6%**
Of all households that owned
a telephone, used a mobile phone
as the household phone

**14.4%**
Of households with no internet access,
indicated "Do not need the Internet"
as reason

**51.0%**
Of all households with no household
telephone, indicated this was because
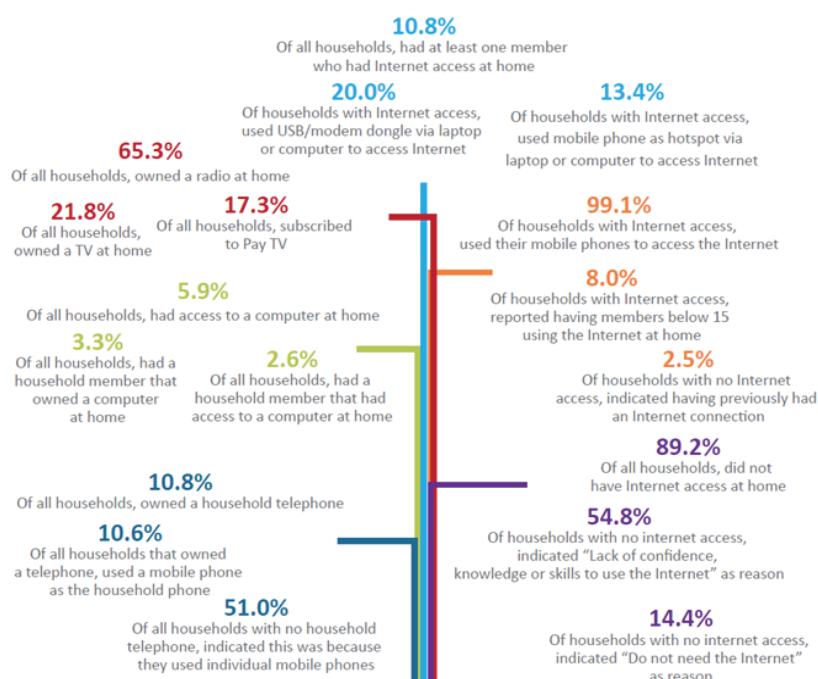they used individual mobile phones

*Figure 1:NATIONAL IT SURVEY 2017/18-Summary of IT household Indicators*
Source: NITA, 2018

## How can the current capacity be used for distance learning?

### Radio

Radio is still a central feature of national life 28 years after private FM broadcasting made its appearance and changed Ugandan society.[23] In 1954, the British colonial administration introduced broadcasting with the establishment of the Uganda Broadcasting Service. The radio service at the time mainly aired re-broadcasts of the British Broadcasting Corporation (BBC) news and was used to execute and promote colonial policies and programmes.[24] Today, according to the Uganda Communication Commission Post, Broadcasting and Telecommunications Market & Industry Q2 Report, 2018, there 292 licenced FM radio stations in Uganda.The radio stations are spread all over the country and even most upcountry towns have at least two.[25]

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[22]The National Information Technology Survey 2017/18, The Collaboration on International ICT Policy for East and Southern Africa (CIPESA) Sample of 2,400 individuals Report available online: https://www.nita.go.ug/sites/default/files/publications/National%20IT%20Survey%20April%20 10th.pdf

[23]Timothy, Kalyegira (2013) '20 years of FM radio stations in Uganda. Available at: https:meug.org/2013/12/31/20-years-of-fm-radio-stations-in-uganda/

[24]AfriMAP, OSIEA and OSMP (2010) 'Public Broadcasting in Africa Series: Uganda'. Available at: https://www.opensocietyfoundations.org/uploads/98954150-a6df-49ee-a680-d9d4a8cd07fe/ugandapublic-broadcasting-20100701.pdf

[25]Uganda Communications Commission (UCC), Post, Broadcasting and Telecommunications Market & Industry Q2 Report, 2018. Report available online: https://www.ucc.co.ug/wpcontent/uploads/2017/09/Communica tion-Sector-Performance-for-the-Quarter-ending-June-2018.pdf

Listenership figures also support that radio is the most popular medium in Uganda. The BBC Monitoring Uganda Media Guide Report notes that radio is more popular medium than television mainly due to poverty and lack of electricity.[26] Most Ugandans receive their information from radio because of its high level of penetration and affordability. A Steadman Group (now Synovate) study[27], reported that 89 per cent of Ugandans said radio was their main source of news. People especially in rural areas, listen to the radio at home, at their friends, relatives or neighbours, and at work.

Radio broadcasting has been used in Uganda for different educational purposes. It was very essential in the fight against the HIV epidemic in the 1990s and has increasingly been used to deliver different programmes to the masses.The decentralisation of radio ensures that cultural, social, and practical knowledge of the target population can be embedded into program design. This can be exploited to adapt the curriculum to a diverse set of mother tongues and allow broad participation.

Although radio can serve to enable the continuation of education through the live or recorded broadcast sessions for many learners, the learners without access to radio should not be neglected. Efforts such as the Red Cross distribution of solar radios in remote villages in Guinea, Liberia and Sierra Leone during the Ebola epidemic[28], should be studied and best practices used to roll-out similar campaigns to ensurethat school-going children that still face grave difficulties in accessing formal education are not left out.

## *Television*

According to the Uganda Communications Commission, there are 39 operational television stations and seven (7) pay-TV service providers. [29]Out of the seven Pay Television Stations, four (4) broadcast using satellite, two (2) Digital Terrestrial and one (1) uses cable as the mode of broadcasting. Only the four using satellite have a countrywide coverage. Digital migration was completed in 2015 and has led to the growth in the number of channels that viewers can access.

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[26]BBC Monitoring (2016), Media Guide, Uganda Report. Available online: https://monitoring.bbc.co.uk/country/UGA

[27]The Steadman Group, (2009) 'Uganda Audience Research Survey: Final Report'

[28] IFRC (2015), 'Guinea: "Radio in a box" Ebola campaign'. Available online:https://www.ifrcnewsroom.org/story/en/138/guniea-radio-in-a-box-ebola-campaign

[29]Uganda Communications Commission (UCC), Telecommunications, Broadcasting & Postal markets Industry Q3 Report, September 2019. Report available online: https://www.ucc.co.ug/wpcontent/uploads/2017/09/Communica tion-sector-performance-Report-for-the-quarter-endingSeptember-2019.pdf

Despite the growth in active Pay-TV subscribers, TV access is still low. The Uganda National Household Survey 2016/17[30] found great variations in television ownership across regions: 42% of households in Kampala were reported to own a television; 3% of households owned a television in Kigezi; 2% of households owned a television in Teso, Bukedi and Acholi, and 1% in West Nile. The findings may be explained by the fact that resources are not evenly distributed across regions in Uganda. Persistent high levels of poverty in most regions mean that many households cannot invest in a television set, bear the cost of access to electricity and are unable to pay service subscription charges that range from a monthly fee of 11,000/= ($2.89) to 219,000/= ($57.54).

The low television ownership statistics across the country has important implications for developing a framework for the provision of continued learning during the COVID-19 lockdown and in the future in Uganda. Although television programming is being used to reach students, as a medium, it is inequitable with huge disparities between rich and poor. Therefore, it should not be used as a standalone solution but as a combination with other solutions.

## Mobile Phones

The introduction of cellular telephony revolutionised Uganda's telecommunications industry since the first network went live in 1995, with two more followings in 1998 and 2001. As early as 1999, Uganda became the first country on the continent where the number of mobile subscribers passed the number of fixed-line users, and the ratio has been growing.[31] According to UCC, Uganda has 63.9% mobile penetration and the National Information Technology Survey found that at an individual level 70.9% individuals owned a mobile device, and of this only 16 % owned a smartphone.[29]

Uganda is uniquely advantaged tothe use of mobile phones because of its young population. The young populace is knowledgeable about new technologies – smartphone features and are enthusiastic to explore and learn any technologies, and can learn fast. Also, mobile phones are stillmore affordable technology than laptops or a computer.

Mobile phones allow for interaction with broadcast lessons and have the potential to expand content limits through greater interactions. Following the abrupt closure of schools, teachers have extensively used mobile phone applications like WhatsApp, Facebook and Google hangouts to continue engaging their students. Holiday work packages that could not be provided at closure are being forwarded to parents via these phone applications.

[30]Uganda Bureau of Statistics (UBOS), Uganda National Household Survey 2016/2017 Report. Financial assistance from the Government of Uganda. Technical input provided by the United Nations Children's Fund (UNICEF) and the Economic Policy Research Centre (EPRC) during the data analysis phase. Survey sample included: 17,320 Households Report available online: https://www.ubos.org/wpcontent/uploads/publications/03_20182016_UNHS_FINAL_REPORT.pdf
[31] ITU (2009), 'A look at one of Africa's fastest growing markets.'
 Available online: https://www.itu.int/net/itunews/issues/2009/06/31.aspx

The mobile phone also advances broadcasting. Not only are most phones pre-installed with a radio application, but it also gives audiences opportunities to call into radio/television stations to participate. During radio and television educational programmes, learners can use their mobile phones to ask questions, receive lesson content and individual feedback.

The power of mobile networks to transform education and other services in Uganda notwithstanding, issues of cost and affordability of mobile internet, access to phone charging points and lack of digital literacy and responsible use of technology need to be addressed.

Partnering with mobile networks to offer special tariffs and bundle packages for learning purposes; exploiting offline mobile phone educational applications and open source software platforms, are a few of the strategiesthat can be adapted to overcome the aforementioned challenges and serve the educational needs of students and teachers.

## *Internet*

Several pieces of literature on distance learning supports the view that more than any other distance media, the Internet and the web help overcome the barriers of time and space in teaching and learning.[32] The successful offering  of single-mode distance education by South African in 1946 and successes of United Kingdom's Open University established in 1969 are cited as examples that have led to the opening of other 25 open universities in developing countries.[33] Today, there several massive open online course (MOOC) platforms offering a wide range of courses from leading universities, private sector and individuals.

However, low internet penetration in Uganda means that a few individuals can access this mode of learning.[22] Furthermore, several technology-related barriers of inadequate infrastructure; high costs of access; unreliable and poor quality of Internet connections and electricity services; weak policy regimes; inaccessibility to appropriate software and course-delivery platforms; shortage of skilled personnel to manage the resources and maintain new delivery modes; a technology-illiterate user group; limited bandwidth; and lack access to online scholarly material have to be overcome for the Internet to become a national option for extending education and learning.[34]

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[32]Bates, T. and Bates, T. (2005) Technology, e-learning and distance education;Gulati, S.
(2008) 'Technology-enhanced learning in developing nations: A review', International Review
of Research in Open and Distance Learning. doi: 10.19173/irrodl.v9i1.477.
[33]Wagner, G. (1998) ' Technology, Open Learning and Distance Education A. W. (Tony) Bates
London and New York, Routledge, 1995, vii + 266 pp.
[34]Farell, G. (2007) ICT in Education in Uganda. Available online:https://www.infodev.org/infodevfiles/resource/Infode-vDocuments_435.pdf

To develop a framework for the provision of continued learning electronically, the Ministry of Education and Sports needs to: collect empirical data on ICT access and use; recognise local differences across rural and urban communities, male and female students; promote the professional development of teachers so that they can make effective use of ICT; integrate in and out-of-school digital literacy practices; consider how global software can best be adapted for local use.

Most importantly, for internet supported ICT learning to play its part in supporting continuity of learning during the COVID-19 pandemic and ultimately achieving Education for All, there is an urgent need for collaborative partnerships between a wide range of stakeholders at both the local and global level.

## *Barriers to accessing these types of delivery platforms*

Besides the national challenges of poorly developed ICT infrastructure, high bandwidth costs, unreliable supply of electricity, and a general lack of resources to meet a broad spectrum of needs, there also significant barriers to accessing the delivery platforms discussed in 5.2. To ensure that any efforts towards distance/remote learning are sustainable, the issues below should also be addressed to maximise learning and accessibility potential:

*Language of instruction:* Without planning, there may be difficulties in adapting the curriculum to a diverse set of mother tongues. For remote programming to be relevant to allow broad participation, mother tongue language provision must be a priority.

*Content differentiation:* Especially for radio and television provisions, a lack of content differentiation by class level in delivery may leave content inaccessible or inadequate. Therefore, solutions allowing the provision of multiple class levels are paramount.

*Relevancy and progression*: For most parents, the value-add of school is that it leads to qualifications and a job. Grades, tests and promotions are associated with relevant education and pathways to opportunity. Parents examining the opportunity costs usually deprioritize poor quality education in lieu of alternate ways for their children to spend their time and contribute to the family.

# Conclusion

The coronavirus pandemic highlights the ongoing need for education to be the first line of defence in crisis -not the first casualty. The more than 15 million children out of school as a result of COVID-19 underline the need for a sustainable solution for education in emergencies through a dedicated resource pool.

The digital divide in Uganda highlights the enormous inequality gap. The difficulty of accessing learning technologies and level of digital literacy skills between privileged and the deprived groups continues to widen the education gap. For the vast majority of learners living in rural Uganda, online learning is but a dream within a dream. The daily realities and struggles to access basic needs, means education is often not a priority. As a nation, the current state of technology infrastructure and access in Uganda only allows for electronic measures to serve a few and only provide basic programs, and cannot be comprehensive or long-term solutions.

Uganda cannot afford to continue to look from the sidelines. Talk and discussions on fully embracing ICT in education must be turned into action. Policymakers must continue to seek long-term solutions that allow equitable education for all through consultation processes, learning and interaction with stakeholders. Policymakers should avoid short-term political and emergency-induced solutions that are often short-sighted and are not holistic.

Similarly, schools and higher education institutions need to lead the shift to the new ways of teaching and learning. This demands that institutions ensure that teachers and faculty members develop the required digital literacy skills, develop effective pedagogical strategies, and develop peer collaborations and support to secure adequate technology and bandwidth.

There is an opportunity to develop digital literacies and more equitable systems. It will require all education stakeholders to support efforts to transition from the traditional rote learning approach with very limited scope for the application of concepts to a more practical and interactive approach that supports critical thinking, creativity and lends itself to a learner-centred instructive approach and electronic learning.

# About the Author

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