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UNESCO GLOBAL EDUCATION MONITORING REPORT CONSULTATION MEETING OF AFRICAN OFFICIALS: 17 NOVEMBER 2021

EDUCATION TECHNOLOGY: ENSURING EQUITY, ACCESS, AND INCLUSION

Education Development Trust

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Global Education Monitoring Report

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GOLA Report

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FORMAT AND PARTICIPANTS

SECTION 1. Format and participants

1.1 Introduction

The purpose of this private video meeting for African government officials, organised in partnership with the UNESCO GEM Report team and the Education Development Trust, is part of the ongoing consultation for 2023 Global Education Monitoring Report that will be on the theme of technology and education. This second consultation is specifically around equity, access and inclusion, and the experiences of African officials when faced with the challenges of ensuring equitable and inclusive education for all. These challenges have been particularly exacerbated during the Covid pandemic, raising concerns of an ever-widening digital divide. Participants were encouraged to discuss the actions and policies of their governments, and to make recommendations where appropriate.

This special online meeting of ministries of education from 21 African countries to discuss how technology can benefit or even harm equitable access to education, was designed as an interactive video meeting whereby all participants took part in moderated small break-out groups. This allowed everyone to converse in private, have suitable time to express their own thoughts and to discuss recommendations in education that contribute to remedial policies and actions.

The purpose of this UNESCO GEM Report consultation meeting of African officials is to recommend evidence-based:

- practical examples on the effects of implementing education technology interventions
- practical examples on the challenges of implementing education technology interventions
- education technology policies based on national experiences of ICT4E projects
- details of both qualitative and quantitative data on education technology
- any areas that you would like to know about other countries' practices that the GEM Report's PEER country profiles could cover

In the context of the above consultation objectives, during the private break-out sessions of the meeting, officials were encouraged to address the following issues:

Access for disadvantaged groups: How can we provide education to all hard-to-reach learners? Give examples of programs put in place to compensate for lack of access to internet or electricity in remote areas and programs to reach disadvantaged populations such as girls, refugees, or learners with disabilities.

Access to content: How can more knowledge reach more learners in more attractive and cheaper formats? What offline or low-technology solutions you implemented or would recommend?

Equity: Equitable use of technology requires the attention of policymakers. How is technology in education distributed nationally both in terms of infrastructure and the distribution of individual devices?

Inclusion: Technology has opened doors to learners with disabilities and special educational needs. Assistive technologies have offered inclusive means of representing information, expressing knowledge, and engaging learners. Do you have programs that promote the use of assistive technologies? How can technology promote inclusive education?

Open Educational Resources: Massive open online courses, zero cost university degrees and micro-credentials have also offered education access for populations. Do you employ open educational resources to reach more learners in cheaper and more attractive formats?

Gender equality: give recommendations on how to overcome the stereotyping of girls having fewer digital skills which may thus prevent more girls than boys developing technology-based competencies.

The onset of the Covid pandemic has accelerated the need to apply technology in education. However even "low-tech" (TV and radio) approaches have

little chance of ensuring learning continuity for all. Even when schools provide distance learning, other challenges negatively affect disadvantaged students' opportunity to learn from relying on greater parental support to a conducive learning environment in the home to the lack of fulfilling the requirements of special needs education. Online learning platforms are being mobilised, but the digital divide means that many students and teachers do not have adequate internet connections and the right equipment, necessary skills, and appropriate study environments to take advantage of online learning.

The Covid pandemic has tested the capacity of distance education to ensure learning continuity at scale. It has shown that access to technology remains a challenge, especially among the disadvantaged populations for whom technology is meant to provide a solution. Furthermore, women and girls are also less exposed to opportunities to acquire digital skills at work and in education. Technology provides major logistical support for teaching and learning, but teachers and students need access to content and resources. Open educational resources are based on the principle that access to educational resources should be free for all learners under an open licence at no cost. Such resources emerged in tertiary education, evolving into basic education applications with many advantages, yet still facing obstacles to large-scale adoption.

The concept note of the 2023 GEM Report identifies three system-wide conditions that need to be met for any technology in education to reach its full potential:

- Ensure that all learners have **access to technology** resources.
- Protect learners from the risks of technology through appropriate **governance and regulation**.
- Support all **teachers** to teach, use and deal with technology effectively.

All the promises of educational technology are of no value if they are only accessible to people in rich countries. Equitable access requires the infrastructure and networks, such as electricity and the internet, as well as the distribution of individual devices such as laptops, tablets, and smartphones. It is here that sub-Saharan Africa faces the biggest challenges and for all the talk of digital transformation over the last decade, the pandemic has truly exposed the infrastructural fault lines. In this meeting we hear from those African officials working on-the-ground in education across the continent to give their experience and evidenced examples of how they have been facing-down the need to ensure equitable access to content, continuity of their education systems and local innovations to overcome structural difficulties in leveraging technology for learning.

1.2 Executive Summary

With over 120 participants all sharing their experiences in this meeting through statements and small break-out groups, a great deal of valuable knowledge and information was imparted over the 2 hours of the meeting. We have disseminated this wealth of understanding and observations into the role of technology in equity, access, and inclusivity for education

Here we summarise the key questions and issues around equitable access, inclusivity and policy guidance taken from the meeting.

<u>Questions</u>
Can technology play a role in helping us address equity, access, and inclusion? How can the wealth of new technological solutions be applied to the education sector? How can information management of education data better inform policy making? What steps need to be made to make system management more effective by leveraging technology? What are the minimum conditions that governments need to put in place? How much should governments embrace the use of ICTs in education? How do we ensure all learners have equal access to education technology? How do we ensure that teachers are best prepared for edtech interventions? Can technology help knowledge reach more learners in attractive and inexpensive formats? Does technology and e-learning offer a means providing the access to education for children with disabilities that they may currently be deprived of? How do we maintain access for girls in the most challenging of environments?

<u>Considerations</u>
The Covid pandemic has tested the capacity of distance education at scale. Access to technology remains a challenge, especially amongst disadvantaged populations. Equally, the pandemic has created the opportunity to focus on the potential benefits of technology in education. The current scale of investment required in ICT infrastructures in Africa is not matched by the available funding. Implementing the right teaching and pedagogy is more important than just providing devices. The cost of data in sub-Saharan Africa is a major problem. The need to reduce class size has put further

demands on education systems in Africa. The pandemic has shone the spotlight on the need for greater communication with parents who have faced their own pandemic-induced pressures. Parents have needed to dedicate more time supervising their children at the expense of working.

Equitable Access

Equitable access requires the infrastructure and networks, as well as the distribution of individual devices. Without the infrastructure we will not achieve equity or inclusive pedagogy. The experience in Africa has shown that a mixture of high-tech and low-tech solutions are required to ensure universal access. Online applications require complementary offline solutions. Where reliable connectivity is lacking then the model of school and community hubs can serve to provide access to neighbouring schools. Partnerships with the education industry sector and telecoms operators need to better leverage the ever-growing African edtech market. Growth through partnerships can make a valuable contribution to access, equality, and affordability. Leaner-centred education using technology has immense potential with the pedagogical consensus being that it leads to deeper comprehension and greater competency.

Inclusivity and Special Needs

Learners with disabilities require equal access to learning applications as well their own specific assistive technologies. We need to overcome any existing social stigmas around supporting people with disabilities. These children must not be invisible, nor face discriminatory practices given that they can make valuable contributions to society. Technology has the power for people with disabilities to realise their full potential. Teachers require the appropriate resources for proper special needs instruction and need to be capacitated in utilising digital learning for students with disabilities. We should encourage the ring-fencing of budgets for assistive technologies.

Gender Equality

Gender equity is a top priority for African educators. Protecting the rights of girls and eliminating stereotypes is essential in achieving equality. We need to overcome the false belief that science and technology-related subjects are more suited for boys. Developing ICT and digital skills for girls should be accompanied with mentoring in valuable life skills that will encourage them to take up STEM subjects. It is important for schools to teach lessons in online safety for girls. The community-school relationship is critical, and the existing efforts of healthcare workers can support the need to ensure girls do not drop out of education.

Policy & Implementation

Technology represents a big opportunity in education systems but requires continued national investment into infrastructure. Solar power represents a useful alternative for off-

grid schools. ICT policy development needs to ensure online safety and privacy protection with a pedagogical framework that guarantees no child is left behind. Access is a political question that requires a whole government approach – ministries of education cannot do it alone. More investment is required in training and capacitating teachers in edtech. Governments should consider low-cost community-driven solutions. Education technology, supported by a comprehensive policy framework has the capability to be an equaliser of the digital, gender and inclusivity divides. As well as the infrastructure, policy must also focus on human capacity (teachers, parents, and learners) and administrative systems needed to deploy an edtech architecture. Developing local capacity and the means of production in technology is critical in sub-Saharan Africa to meet developmental goals as well as deliver on the practical day-to-day implementation.

1.3 Format of Video Conference and this Report

In section 1.4 we list the one hundred and twenty nine (129) participants of this video meeting. The experience over the last 18 months of organising online video meetings is to ensure that every participant has a voice. Small groups are essential. So, after opening statements the event was broken into small break-outs each with a moderator to take notes and support the conversation.

Prior to the break-out rooms there were four opening statements from: Hon Gaspard Twagirayezu, Minister of State for Primary and Secondary Education, Rwanda; Benjamin Gyasi, Chief Director, Ministry of Education, Ghana; Gabriel Mhumha, Chief Director for Curriculum Development and Technical Services, Ministry of Primary & Secondary Education, Zimbabwe; and Manos Antoninis, Director, UNESCO GEM Report. The closing statement was made by Richard King, Director of sub-Saharan Africa, Education Development Trust. Although all discussions were recorded and transcribed for the purpose of this report, none of the quotes or what was said during the private break-out rooms is made attributable to any one person. The following was the video conference format:

Part A: Opening statements from: Hon Gaspard Twagirayezu, Minister of State for Primary and Secondary Education, Rwanda; Benjamin Gyasi, Chief Director, Ministry of Education, Ghana; Gabriel Mhumha, Chief Director for Curriculum Development and Technical Services, Ministry of Primary & Secondary Education, Zimbabwe; and Manos Antoninis, Director, UNESCO GEM Report.

Part B: Sixteen break-out groups were formed, each with a moderator to record discussions and take note of the key points raised.

Part C: All participants returned from their break-out groups. The closing statement was provided by Richard King, Director of sub-Saharan Africa, Education Development Trust

The total time of the video meeting was 110 minutes.

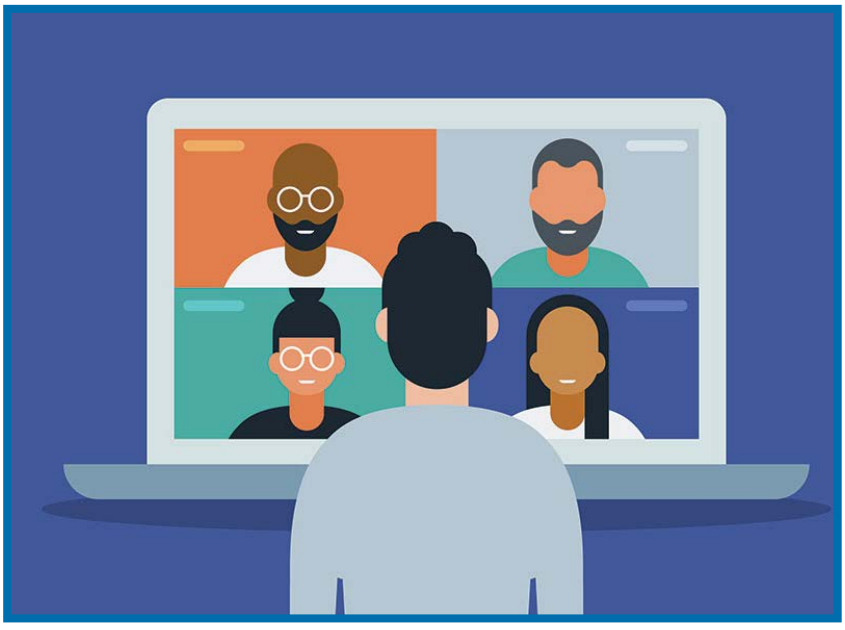
After introducing the participants in 1.4, the format of this report is structured around the policy issues and non-attributable quotations. The participants hold senior positions in government from multiple countries and expressed what they are experiencing as well as their own recommendations.

In this report we have done our best to identify the main subjects taken from what participants said to provide a dissemination of recommendations and experiences suitable for the consultation of the 2023 UNESCO GEM Report on the theme of technology and education.

Equitable Access – The African Experience

Gender Equity and Inclusivity

Policy, Collaboration and Local Development



1.4 Participants

We would like to thank all those for participating and providing such outstanding contributions. The opportunity for them to openly converse in small break-out groups provides us with a discerning judgement on the key issues and immediate policy recommendations. It is an honour for the organisers to host such a distinguished gathering of educators and policy makers. Everyone committing their time during this ongoing period of uncertainty is a true testament to their desire to ensure strong decision making around the future of education. Participants are listed by country, alphabetically:

ANGOLA: Gabriel Boaventura, National Director for Basic Education, Ministry of Education

BOTSWANA: Miriam B Maroba, Deputy Permanent Secretary for Policy Development Research & Educational Reforms, Ministry of Basic Education

BOTSWANA: Taolo Tsimanyane, Deputy Director, ICT and Media Services, Ministry of Basic Education

BOTSWANA: Gabriel Bagwasi, Principal Education Officer, Mathematics and e-Content Development, Ministry of Basic Education

BOTSWANA: Thibogang Malibala, Principal Education Officer, Mathematics, Ministry of Basic Education

BOTSWANA: Dr Spar Matthews, Principle Education Officer, Sciences, Ministry of Basic Education

BURUNDI: Prof Tatien Masharabu, Permanent Executive Secretary, National Commission for Science, Technology & Innovation

CAMEROON: Sir Dr Michael Nkwenti, Lead Inspector of Pedagogy in charge of Educational Technologies, Ministry of Basic Education

CAMEROON: Julius Mih, Inspector of Pedagogy, Ministry of Basic Education

CAMEROON: Dr Lucas Agwe, Regional Coordinating Inspector, Southwest, Ministry of Secondary Education

CAMEROON: Chief Celestine Fozao, Regional Pedagogic Inspector, Buea, Ministry of Secondary Education

CAMEROON: Dr William Shu, Assessor for the Cameroon Advanced Level Computer Science, Ministry of Secondary Education

CAMEROON: Lawrence Kambiwoa, Chief of Computer Studies, Ministry of Secondary Education

CAMEROON: Dr Luke Musongong, Regional Pedagogic Inspector, South West Region, Ministry of Secondary Education

CAMEROON: Prof Marcelline Djeumeni Tchamabe, Associate Professor in Pedagogy, University of Yaounde

ETHIOPIA: Dr Clare Buntic, Education Technical Lead, TARGET Ethiopia, Education Development Trust

ETHIOPIA: Tigist Tefera, School Leadership Training Reform Lead, Education Development Trust. *Moderator*

ETHIOPIA: Dagmawit Tullu, Safeguarding Officer, TARGET Ethiopia, Education Development Trust. *Moderator*

FRANCE: Manos Antoninis, Director Global Education Monitoring Report, UNESCO. *Opening Speaker*

FRANCE: Anna Cristina D'Addio, Senior Policy Analyst, Global Education Monitoring Report, UNESCO. *Moderator*

FRANCE: Laura Stipanovic, Researcher, Global Education Monitoring Report, UNESCO. *Moderator*

FRANCE: Yuki Murakami, Researcher, Global Education Monitoring Report, UNESCO. *Moderator*

FRANCE: Camilla Lima de Moraes, Researcher, Global Education Monitoring Report, UNESCO. *Moderator*

FRANCE: Daniel April, Researcher, Global Education Monitoring Report, UNESCO. *Moderator*

FRANCE: Francesca Endrizzi, Researcher, Global Education Monitoring Report, UNESCO. *Moderator*

GAMBIA: Ousainou Drammeh, Chairperson Education Advisory Council for Basic and Secondary Education

GAMBIA: Momodou Jeng, Director Curriculum Research Evaluation and Development, Ministry of Basic and Secondary Education

GAMBIA: Alpha Bah, Principal Education Officer, Ministry of Basic and Secondary Education

GAMBIA: Sohna Foon-Chore, Director of Planning, Ministry of Basic and Secondary Education

GHANA: Benjamin K Gyasi, Chief Director, Ministry of Education. *Opening Speaker*.

GHANA: Catherine Appiah-Pinkrah, Director, General Administration, Ministry of Education

GHANA: Angela Affran, Technical Advisor to Minister, Ministry of Education

GHANA: Gyamfi Adwabour, Executive Director of Centre for Distance Learning and Open School (CENDLOS), Ministry of Education

GHANA: Eric Nkansah, Technical Advisor, Ministry of Education

GHANA: George Owusu, Performance Management and Accountability Advisor, Ministry of Education - National Education Reforms Secretariat

GHANA: Dr Fred Asamoah, Director General, Commission for Technical Vocational Education and Training

GHANA: Solomon Yamoah, General Manager, Ghana National Education Campaign Coalition

GHANA: Akwasi Addae-Boahene, Chief Technical Advisor, Transforming Teaching, Education & Learning

GHANA: Enoch Cobbinah, Reform Coordinator, Ministry of Education - National Education Reforms Secretariat

GHANA: Ama Serwah Nerquaye-Tetteh, Secretary General, National Commission for UNESCO

GHANA: Kofi Kwakye, Education Officer, National Commission for UNESCO

KENYA: Allan Oluoch, Advisor to Principal Secretary, Ministry of ICT, Innovation and Youth

KENYA: Francis Karanja, Chief Education Officer ICT for Education, Ministry of Education

KENYA: Sebastian Owanga, Deputy Director, Ministry of Education

KENYA: Joseph Naju, Deputy Director for Technical Vocational Education and Training, Ministry of Education

KENYA: Martin Kungania, Assistant Director: Special & Inclusive Education Specialist, Ministry of Education

KENYA: John Kimotho, Director Educational Media, Kenya Institute of Curriculum Development

KENYA: Dr Lydia Mucheru, Senior Principal Curriculum Development Officer: Educational Media, Kenya Institute of Curriculum Development

KENYA: Joshua Opondo, Infrastructure Projects Lead, Kenya ICT Authority

KENYA: Keith Maleche, Deputy Director Examinations Administration, Business and Technical, Kenya National Examinations Council

KENYA: Mary Kangethe, Director, Global Education Priorities, UNESCO

KENYA: Margaret Kamau, Deputy Project Director, Technical, Education Development Trust. *Moderator*

KENYA: Sarah Thuo, Senior Development Consultant, Education Development Trust. *Moderator*

LESOTHO: Bertha Seutloali, Chief Executive Officer for Secondary Education, Ministry of Education

LIBERIA: Hon Tarnue Marwolo Bongolee, Assistant Minister for Student Services, Ministry of Education

LIBERIA: Hon Felicia Doe-Sumah, Assistant Minister for Basic and Secondary Education, Ministry of Education

LIBERIA: Sangay Faeflen, Director of STEM Education, Ministry of Education

MALAWI: Dr Joshua Valeta, Director of Open, Distance and e-learning, Ministry of Education

MALAWI: Dr Chomora Mikeka, Director of Science, Technology and Innovation, Ministry of Education

MALAWI: Janet Nkhalamba, Principal ICT Officer for e-Learning, Directorate of Open, Distance and e-learning, Ministry of Education

NAMIBIA: Dr Patrick Simalumba, Director, National Institute For Education Development (NIED), Ministry of Education, Arts & Culture

NAMIBIA: Fransina Nelago Lipumbu, Chief Education Officer, Professional Development, Ministry of Education, Arts & Culture

NAMIBIA: Leonard Amunime, Senior Education Officer ICT, Ministry of Education, Arts & Culture

NAMIBIA: Frieda Ngula-Akwaake, Senior Education Officer, National Institute For Education Development (NIED), Ministry of Education, Arts & Culture

NAMIBIA: Rochester Mushabat, Resource Centre Manager, National Institute For Education Development (NIED), Ministry of Education, Arts & Culture

NAMIBIA: Felisia N. Sheehama, Education Officer, Ministry of Education, Arts & Culture

NIGERIA: Abubakar K Isah, Director of Information and Communication Technology, Federal Ministry of Education

NIGERIA: Dr Folake Olatunji-David, Director of Basic Education, Federal Ministry of Education

NIGERIA: Onyeka Anyanku, Director of the Colleges of Education, Federal Ministry of Education

NIGERIA: Elizabeth Oyelola Omolara, Assistant Director for eLearning and ICT Staff Development, Federal Ministry of Education

NIGERIA: Mohammed Mahmud, Technical Assistant to Minister, Nigerian Educational Research and Federal Ministry of Education

NIGERIA: Prof Yakubu Ochefu, Secretary General, Association of Vice Chancellors of Nigeria

NIGERIA: Vivienne Bamgboye, Principal Consultant, Oye Centre for Learning & Development

NIGERIA, BENUE STATE: Mary Enode Egwu, Deputy Director, Ministry of Information and Orientation

NIGERIA, OGUN STATE: Ronke Soyombo, Special Adviser to the Governor for Primary, Secondary and Technical Education, Governor's Office

NIGERIA, OGUN STATE:: Olatundun Adekunte, Director, Information Technology, Bureau of ICT

NIGERIA, OGUN STATE:: Gbadebo Adenle, Special Assistant on ICT and Innovation to the Commissioner, Ministry of Education

NIGERIA, PLATEAU STATE: Edward Buba, Head of e-Governance, ICT Development Agency

NIGERIA, PLATEAU STATE: Winifred Wang, Head of Project Management, ICT Development Agency

RWANDA: Hon Gaspard Twagirayezu, Minister of State for Primary and Secondary Education, Ministry of Education. *Opening Speaker*

RWANDA: Emmanuel Mucangando, Advisor to the Minister of State in charge of Primary and Secondary Education, Ministry of Education

RWANDA: Dr Christine Niyizamwiyitira, Head of ICT in Education, Rwanda Education Board

RWANDA: Jean Mugiraneza, Leadership for Learning Lead, Education Development Trust. *Moderator*

SEYCHELLES: Joseph Raj, Principal Research Officer Innovation, National Institute for Science, Technology & Innovation

SOMALIA: Mohamed Mukhtar, Director of Curriculum, Ministry of Education, Culture and Higher Education

SOMALIA: Abdulaziz Nur Mohamed, Director of TVET and Non-Formal Education, Ministry of Education, Culture and Higher Education

SOMALIA: Ismael Abdi, Senior Advisor, Teacher Development, Ministry of Education, Culture and Higher Education

SOMALIA: Adam Osman Sh Hassan, Planning Advisor, Ministry of Education, Culture and Higher Education

SOMALIA: Said Awaleh, Education Management Information system (EMIS)Technical Advisor, Ministry of Education, Culture and Higher Education

SOUTH AFRICA: Seliki Tlhabane, Chief Director for Curriculum & Quality Enhancements Programmes, Ministry of Basic Education

SOUTH AFRICA: Salie Faker, Chief Director: Education Human Resource Management, Ministry of Basic Education

SOUTH AFRICA: Dr Mark Chetty, Director – National Assessment, Ministry of Basic Education

SOUTH AFRICA: Dr Neo Mothobi, Chief Education Specialist, Ministry of Basic Education

SOUTH AFRICA: Dr Aaron Nkosi, Director for Curriculum Research, Ministry of Basic Education

SOUTH AFRICA: Habib Karimulla, Director of Educator Performance Management and Development of Whole School Evaluation, Ministry of Basic Education

SOUTH AFRICA: Lala Maje, Project Manager: Presidential Youth Employment Initiative, Ministry of Basic Education

SOUTH AFRICA, GAUTENG PROVINCE: Handson Mlotshwa, Director: ICT Teacher Development, Department of Education

SOUTH AFRICA, GAUTENG PROVINCE: Rajesh Singh, Deputy Chief Educational Specialist, Department of Education

SOUTH AFRICA, MPUMALANGA PROVINCE Dr Pat Moodley, Chief Education Specialist, Department of Education

SOUTH AFRICA, MPUMALANGA PROVINCE: Elijah Nkosi, Director of Mathematics, Science & Technology, Department of Education

SOUTH AFRICA, MPUMALANGA PROVINCE: Sizangaye Mahlabane, Deputy Chief Education Specialist Computers in Education – Ehlanzeni, Department of Education

SOUTH AFRICA, MPUMALANGA PROVINCE: Nancy Mahlalela, Deputy Chief Education Specialist: Inclusive Education and Career Guidance, Department of Education

SOUTH AFRICA, MPUMALANGA PROVINCE: Nomusa Keninda, Senior Education Specialist: eLearning in Education, Department of Education

SOUTH AFRICA, WESTERN CAPE PROVINCE: Haroon Mahomed, Chief Director: Curriculum Management and Teacher Development, Department of Education

SOUTH AFRICA, WESTERN CAPE PROVINCE: Ismail Teladia, Senior Curriculum Planner: Life Orientation/Life Skills, Department of Education

TANZANIA: Dr Noel Mbonde, Director, Technical and Vocational Education and Training, Ministry of Education, Science and Technology

TANZANIA: Fides Lubuva, Executive Assistant, Ministry of Education, Science and Technology

TANZANIA: Faith Shayo, National Program Officer, Education, UNESCO

TANZANIA, ZANZIBAR: Omar S Ali, Director of ICT in Education, Ministry of Education and Vocational Training

TANZANIA, ZANZIBAR: Omar S Saleh, Technical Advisor for ICT, Ministry of Education and Vocational Training

UGANDA: Collins Mwesigwa, Head of Unit - ICT National Council for Science and Technology, Ministry of Science, Technology & Innovation

UNITED ARAB EMIRATES: Giiti Wassie, Senior Education Consultant for Middle East and North Africa, Education Development Trust. *Moderator*

UNITED KINGDOM: Richard King, Regional Director, Sub-Saharan Africa, Education Development Trust. *Closing Speaker and Moderator*

UNITED KINGDOM: Elnaz Kashefpakdel, Senior Research Officer, Education Development Trust. *Moderator*

UNITED KINGDOM: Kelly Jennings-Robinson, Senior Development Consultant, Education Development Trust. *Moderator*

UNITED KINGDOM: Leanne Cameron, Senior Consultant, Education Development Trust. *Moderator*

UNITED KINGDOM: Charlie Allen, Innovation and Insights Officer, R&D Pilot Projects Lead, Education Development Trust. *Moderator*

UNITED KINGDOM: Cheryl McGechie, Director of Communications, Education Development Trust.

UNITED KINGDOM: Sarah-Beth Wilding, Senior Marketing Manager, Education Development Trust.

UNITED KINGDOM: John Glassey, CEO, Brains Global. *Host*

UNITED KINGDOM: Claire Urie, Head of Government & International Relations, Brains Global

UNITED KINGDOM: Victoria Tate, Head of Education Partnerships, Brains Global

ZAMBIA: Tshiya Charlotte MPenge, Senior Officer for ICT Policy & Regulations, SMART Zambia

ZAMBIA: Chewe Chileshe, ICT Officer, Ministry of General Education

ZAMBIA: Chillingtone Nyangu, ICT Officer, Ministry of General Education

ZAMBIA: Billy Jere, Programme Analyst, Ministry of General Education

ZIMBABWE: Gabriel Mhumha, Chief Director for Curriculum Development and Technical Services, Ministry of Primary & Secondary Education. *Opening Speaker*

ZIMBABWE: John Dewah, Consultant Curriculum Development and Technical Services Department, Ministry of Primary & Secondary Education

ZIMBABWE: Chipo Salome Chimoto, Deputy Director, Technical Services, Ministry of Primary & Secondary Education

DISCUSSIONS

SECTION 2. Discussion

2.1 Opening Statements

The opening statements were provided by Hon Gaspard Twagirayezu, Minister of State for Primary and Secondary Education, Rwanda; Benjamin Gyasi, Chief Director, Ministry of Education, Ghana; Gabriel Mhumha, Chief Director for Curriculum Development and Technical Services, Ministry of Primary & Secondary Education, Zimbabwe (summarised due to unstable connection); and Manos Antoninis, Director, UNESCO GEM Report.

Hon Gaspard Twagirayezu

The minister began by referencing how the Covid pandemic has, in Rwanda, increased the gap of access, equity and inclusion, especially regarding the use of educational technology. Rwandan school closures were for the period March 2020 to October 2020 and although schools are now open again, the seven month closure period was very testing and made the equity gaps more evident. But equally, the pandemic has also created an opportunity to increase the focus on the potential benefits and role of technology in the education sector.

With the need to ensure continuity of learning, Rwanda put in place the best available ICT solutions to make sure that basic learning could happen. This involved building on the years of previous experience in increasing network access across the country and availability of devices in schools. During the pandemic, this included a mixture of ICT and 'low-tech' solutions from web-based learning platforms to the use of broadcast lessons on TV and radio, along with telephone-based quizzes for learners. In every effort to ensure increased equitable access, the ministry of education developed learning materials for use on smart devices.

Yet while technology offers different opportunities in education, access to the different range of devices remains a major challenge. Therefore the ministry believed that to provide the right platform for access during the pandemic, they had to make sure that those students who did not have access to smartphones could at least utilise TV and radio lessons. With the technology in place, Rwanda has also invested in teacher training such that teachers are able to guide learners through the experience of remote learning.

Gender equity and inclusivity is an important domain of the Government of Rwanda with programs such as 'WomTech' – a strategy for empowering women through digital technologies; and President Kagame's July 2021 commitment to the Generation Equality Forum. This includes ownership of smartphones, access to digital financial services and the study of science, technology, and mathematics at upper secondary level; along with ensuring an innovation and entrepreneurship ecosystem that is fully inclusive. Achieving gender equality in technology and innovation is just one part of the wider struggle to guarantee equal rights and opportunities for women and girls.

There remain many challenges, not least is internet connectivity that is often not adequate in terms of speed and cost. The second main challenge is insufficient devices for many learners, that particularly made continuity of education during the school closures difficult. We need to also consider specialist areas of education and the availability of content such as TVET which requires a more advanced type of content that is more expensive to produce and implement. Equally, specific content and availability of resources for special needs education is a challenge that we must address to ensure no learner is left behind.

Meetings such as this are important to bring stakeholders together to make recommendations, offer solutions and discuss how we can support the Sustainable Development Goals (SDGs) for using technology in education. In Rwanda they have been working hard to find long-term solutions in response to Covid, and to be better prepared for the post-Covid landscape. While doing so it is necessary to remain cognisant of the key issues around quality, access, relevance, equity, and always ensuring gender inclusivity as the basic principles for any type of education delivery. Technology represents a big

opportunity and amongst the lessons learnt from the pandemic is the need to seriously continue investing in ICT for education post-pandemic.

Benjamin Gyasi

The Ministry of Education in Ghana is mandated to establish a robust educational system that focuses on problem solving, creativity and building critical skills intended to produce well-balanced individuals with the requisite knowledge and values to become functional and productive citizens. Due to the impact of the Covid pandemic the ministry has deployed technology the iBox, which is an offline solution and iCampus, which is an online platform for students, to access all core subjects.

The Ministry of Education is retooling kindergartens by introducing ICTs for early childhood, which was intended prior to the pandemic but has been accelerated to ensure the continuity of education for the youngest of learners. The use of ICTs in education is a policy that now applies across all levels and grades within the Ghanaian education system with reform of the curriculum to better embed technology and to expand access to STEM (science, technology, engineering, and mathematics) education. The government is now constructing twenty new STEM centres across the country to better leverage the use of technology in education.

Ghana has also adopted the Edmodo platform for teaching and learning that enables teachers to create classes online and provides a space for students and teachers to connect and collaborate, share content, as well as accessing homework, grades, and class notifications. Despite this, the online learning facilities are not being accessed by every individual due to there not being full internet availability throughout the country. To account for these access limitations, they also established the Ghana Learning Channel which a dedicated national television channel providing 24 hour educational broadcasts with pre-recorded lessons from teachers. Furthermore, there is the Ghana Learning Radio which provides similar access to broadcast lessons.

All secondary schools and colleges of education have now been connected with free WiFi allowing for the downloading of content from the e-learning platform which can then be installed into the offline iBoxes. This intelligent device been deployed in areas of low levels of connectivity or low data access, with over 250 iBoxes installed in various schools. The device provides access to over 3,000 open educational resources and the Ministry of Education has also installed solar power as a back-up power supply for those in the most remote areas where uninterrupted power may be lacking. The online e-learning platform gives students the opportunity to access all core subjects, access to video lessons and lesson notes, access to virtual labs and simulations and access to online tests after every lesson.

In the case of both the offline and online solutions, it is important to note how open educational resources (OERs) play a key role in delivering equitable access to Ghanaian students. Also through the Ghana Library Authority they have deployed a digital library service to access all educational books online. By way of inclusivity they have deployed 3,000 pre-loaded devices for special educational needs schools across the country.

It remains the biggest challenge that they do not have full internet connectivity across the length and breadth of the country. So they are working, along with the Ministry of Communications, with the telecom operators and internet service providers to improve and upscale broadband services. These efforts are supported by collaborating with UNESCO to train teachers in digital literacy according to the ICT Competency Framework for Teachers and now the government has provided devices under their one-teacher-one-laptop program. Teachers who take part in these online training camps are awarded points that contribute towards their professional development. In Ghana, every effort is being made to make use of educational technology to better deliver services and meet the principle of equitable, quality education for all.

Gabriel Mhumha

In Zimbabwe, the first school closures occurred in March 2020 and since then it has been very much a story of “closure, brief opening, closure, brief opening …” The lesson has been to accept the new normal and that online learning is an obvious solution to the ongoing impact of the pandemic. The Ministry of Primary and Secondary Education has focussed on several initiatives to best ensure access, inclusion, and equity.

Firstly, there has been the “catch-up strategy” based on the premise that no child be left behind and that learn anytime and anywhere initiatives can be implemented by the ministry and school districts; but these measures require further investment and the availability of devices for the educational technology to be effective. So far the country has managed to provide devices to ministry head office personnel and education district offices, with the next step being to provide access to devices to all teachers and then eventually every learner.

The ministry also identified those most disadvantaged districts and chose selected schools that needed to be capacitated with tablets, interactive panels, and local area networks with this content model ready to be scaled-up to all provinces in the country. Schools without connectivity were provided with memory cards and recorded content covering the whole curriculum. Those schools that do have robust and reliable broadband connectivity have been made community hubs, providing access to technology and electronic learning materials for neighbouring disadvantaged schools. This has been supported by selecting 'community champions' in districts to function as focal points for learners and help give them access to content.

The learning management platforms have been designed to increase access to e-content and this is supplemented with teacher training programs in content development such that they can upload their own lessons and instructions onto the platform. It remains that the cost of data in Zimbabwe is very expensive and a challenge for the education sector, so more work needs to be done in improving collaboration with the private sector operators to address the prohibitive costs.

The key strategic drivers for primary and secondary education in Zimbabwe include competency-based curriculum, which is now in its sixth year, aiming towards the country's aims of becoming a middle income economy by 2030. ICT policy development is progressing to ensure that online access is safe, and that privacy is protected with a pedagogical framework based on ensuring that no child is left behind irrespective of age, gender, location, or competency level. This includes making sure that those with learning disabilities and special needs have equal access to learning technologies. The overall approach is to put the teacher at the centre of education and to involve them as key drivers in the content development for online platforms.

Manos Antoninis

This opening statement is in conjunction with the presentation in Appendix A.

The Global Education Monitoring Report has the mandate of the international community to monitor progress on education in terms of the Sustainable Development Goals (SDGs), and to report on the implementation of national strategies to help all relevant partners account for their commitments. The 2021-22 Report, launched this December, covers the role of non-state actors in education. This touches on the use of technology in education but the 2023 report is fully dedicated to the theme of technology in education.

Although the Covid pandemic has heightened attention around the use of technology in education, particularly online learning, there remains significant diversity in the opinions and views on the role of education – not least in the context of equity, access, and inclusivity. Can technology play a role in helping us address these issues? There are some terrific technological solutions, so how can they be applied in the education sector?

There are four major principles that form the framework of the GEM Report. Firstly, today's topic of access, equity, and inclusion. The second dimension is quality – split into foundational skills to improve learning outcomes and digital skills, i.e. the skills that technology requires citizens to be familiar with. The third issue is around how education systems support technological development including the teaching of ICTs in secondary and vocational schools and universities that leads to the development of innovative technologies. The fourth role of technology is in terms of system management and how the information management of education data can support and better inform policy making.

Several broad question then stem from these four main principles. For example, what steps do we need to overcome to make system management effective by leveraging technology? What are the minimum conditions that governments need to put in place? How do we ensure all learners have access to technology resources that they require as part of their education? What approaches should countries follow? Most importantly, in all these contexts is the issue of teacher preparation and ensuring that teachers are at the heart of ensuring edtech interventions will succeed.

Prior to the pandemic we already had the challenge of delivery education services to more remote populations. We have witnessed in the last 18 months, the use of 'low-tech' solutions to ensure the continuity of education, such as TV and radio. Technology that appeared two generations ago. With respect to equity and inclusion we have heard from the likes of Rwanda and Ghana already in how they wish to use assistive technologies for learners with disabilities such that no child is left behind. Yet we also know there are serious implementation and financial challenges.

So how can we fulfil the promise of technology that, in principle, can help knowledge reach more learners in attractive and inexpensive formats? As part of this consultation period is essential to hear from governments and educators on their experiences

and how such lessons learnt, both positive and negative, can be used to guide future education policy decisions. Another feature of the GEM report is to feature country profiles. These Profiles Enhancing Education Reviews (PEER) aim to describe all countries' laws and policies on key themes in education to improve the evidence base on the implementation of national education strategies.

2.2 Equitable Access – The African Experience

A short precis of equitable access in sub-Saharan Africa is that we see the use of technology in education and with it online learning in urban areas, universities, and the private school sector. The digital divide is exposed in rural and less advantaged areas along with particular nuances in the type and grade level of education. Technical and vocational education is deliberately designed to be "hands-on" and around half of the assessment grade values are practical. Governments have policies and programs that underline a commitment to digital transformation but in most countries the scale of investment required in the ICT infrastructure is not matched by available funding. Ethiopia is a typical case in point. A country of 120 million people where the government is the main growth driver in the ICT industry and the majority shareholder in the only telecoms company Ethio Telecom. In terms of the government's Growth and Transformation Plan 2, ICT will provide a springboard towards realising the national vision of becoming a middle-income country by 2025. The government plans to liberalise the telecoms market and modernise telecoms infrastructure. While 2G networks are widely available, 4G coverage is restricted to Addis Ababa. Ethiopia also has a notably low level of international connectivity and e-commerce is in its infancy in Ethiopia.

For many participants in the meeting, the issues around access to digital resources for the purpose of teaching and learning in sub-Saharan Africa are political questions that require political will with a whole government approach. The substantial costs of the ICT infrastructure, deployment of devices and reskilling of the teaching profession requires an equally substantial government intervention within the education ecosystem. South Africa, for example, has a strong policy environment for the regulation of digital deployments but the challenge is a shortage of resources, as it is for any developing country. This often results in departments of education taking a targeted approach with the existing resources they have. Maybe the targeting of a disadvantaged community or non-fee paying public schools. This they have done in Gauteng Province, giving devices to learners, and installing interactive panels in

classrooms, along with developing open education content.

As discussed in previous GOLA meetings, Kenya has its now well-established Digital Literacy Program (DLP) which has resulted in the provision of devices to all public primary schools – equivalent to almost the total number of children per class. Accompanying the DLP is the Kenya Education Cloud run by the Kenya Institute for Curriculum Development (KICD), which has considerably upscaled the available educational content in the cloud during the pandemic. The cloud is accessible to all teachers and learners, requiring stable internet connectivity and this is where there may be access challenges for those who are not online. Yet all schools are now connected, and teachers have been capacitated with training on how to integrate ICTs into their lesson plans.

In terms of access to content during school closures, South Africa has a truly diverse schooling community with a wide range of resource availability. The more well-resourced schools managed to move quickly to online platforms and utilise digital tools with little assistance from the government. Whereas access for under-resourced schools in more remote areas and in township schools was more challenging and high-tech solutions did not work very well. Here online teaching is problematic due to lack of bandwidth and access to devices. So the better route in South Africa has been to get learners back to school for face-to-face teaching, whereby technology can be used as an enabler but not a replacement. At secondary level they are still rotating the timetable and at primary level all learners are back at school. The

most important lesson learnt has been that teachers need a lot more training in educational technology. More investment is required in training on the best classroom practices and the use of ICTs as part of the pedagogical process. The key takeaway is that getting the teaching and pedagogy right is more important than providing to devices for all learners.

Malawi, with a less developed education technology infrastructure compared to, say, Rwanda or Kenya, has a substantial proportion of learners in rural areas who are not connected nor have access to devices. During the pandemic, for distance education, they found that the supply of printed materials directly to schools and communities proved effective and useful. They have learnt that one edtech size does not fit all and any technology must come with offline solutions to ensure equity. The teacher remains at the centre and accordingly they must have access to devices, understand the technology and ensure acceptability of ICT for education in the school system. South-South cooperation is an important feature in sub-Saharan Africa that offers the potential of sharing experiences, collaboration and building capacity with greater combined purchasing power.

In Cameroon, the effort towards integrating digital technologies in education started about five years ago, but at a relatively slow pace. Like other countries the pandemic exposed the inadequate internet connectivity and insufficient devices. Now the ministry of education is working subject by subject to encourage and train teachers on how to present online lessons. The country is at the stage of putting content online for students, though a great deal of work is still required to achieve equitable access.

The cost of data and cost of internet service subscriptions is a major issue in sub-Saharan Africa. Sub-Saharan Africa still has the most expensive data prices in the world. The region has six out of the ten most expensive countries in the world for 1GB of mobile data, according to the "World Mobile Data Pricing 2021 Report". Though it is important to note the correlation between cost of data and the state of ICT infrastructure. Many of the cheaper countries in which to buy mobile data have better mobile and fixed broadband infrastructure and so providers can offer copious amounts of data. At the more expensive end are those countries with poor infrastructure, meaning less consumption, making it more costly to purchase data packages.

Nigeria has a school-age population of over sixty million and the Federal Ministry of Education, estimates that the number of out-of-school children stands at around ten million, as of March 2021. This is up three million from last year, coinciding with the Covid pandemic and in some areas, increased insecurity around schools. They have worked on this considerable challenge with the Global Partnership for Education (GPE) to provide teaching and learning materials, using community learning hubs that can also give a range of services including guidance for teachers and training for psychosocial support of learners while they are at home. In some quarters there is optimism that technology can help education at scale in Nigeria. But implementation is done at State level so there is huge variance across the country in how and where educational technology is being deployed.

In Cameroon there is an access gap between the public and private universities where we see the latter having already invested in online learning platforms and using their own internal technological skills to develop the content for e-learning. So from 2021, the Minister of Higher Education has instructed all public universities to have their own dedicated data centres which will then allow the opportunity for faculty leaders to utilise open online courses and for students to access e-learning software.

In Western Cape, South Africa, they have a well-resourced education portal that has seen a quadrupling of use since March 2020. Despite this and further leveraging of TV and radio broadcasts for education, they found that there is still a high need for supplementary support to ensure equity. Accordingly, they allocated more than two thirds of their additional schools budget to print what they called Covid responsive material. South Africa wants to ensure that face-to-face education retains its pre-eminence and accordingly the creative use of printed materials remains strong on the agenda.

A country like Gambia faces multiple accessibility challenges in internet connectivity, electricity, devices, and having the relevant and skilled teachers. So, they have used low-cost community-driven solutions such as *Raspberry Pi* and local radio, allowing people to have greater access to content. This has proved useful, but any technology that is driven by higher costs and internet access, results in adjusting pedagogies which increases teacher trainer costs. Currently, the country has a limited number of teachers who are champions of integrating ICTs into education.

In response to the pandemic and to ensure greater access to educational content, Ogun State in Nigeria set up a learning management system (LMS). This is accessible to schools in the State, covering each subject area for both secondary and primary school teachers. To evaluate the impact and reach of this virtual platform they did an assessment for children,

like a mock exam, online on a Saturday. 83,000 students took the online test, as well as garnering interest from kids in other States. They were able to mark the tests within 48 hours, showing how digitisation is scalable and can be transformative – if made accessible. Deployment of this LMS has also helped educate teachers in the use of online resources and the creation of digital content.

Namibia, with a population of 2.5 million spread over a country of 800,000 sq. km will always find connectivity a challenge. So to achieve equity requires a balancing of resources and innovative actions such as coming to agreement with providers to serve schools between towns. SchoolLink is the learning management system used amongst schools and the government is collaborating with private schools with existing e-learning content that was uploaded onto the SchoolLink platform. Where there was no connectivity, they combined the use of printed materials with mobile phone apps to connect teachers and parents. After the Covid outbreak they surveyed teachers and found that 65% already owned laptops and 70% have attended ICT literacy training workshops since they started a couple of years ago. Namibia also has semi-nomadic people like the Himba where they use mobile school units to provide educational access for these communities that will not necessarily go to a fixed school location. These communities will move according to the hunting season so the mobile schools will follow where the people go, providing educational materials and supporting young people. As education is compulsory up until the age of sixteen, the country does not want to lose these learners so senior education officers will target these regions of the Himba. Furthermore, they will engage with teachers in regional schools to provide additional seasonal support as well as learning materials.

Education systems naturally will have their own in-built inequalities. The gap is widened when it comes to access to quality content. They have noticed this in Ghana, where like other countries there is a collection of higher performing schools, a sort of Ivy League of secondary schools, which are also the best equipped. Access to these is determined by performance. So to address inequity, the government has determined a quota of 30% of learners from the under-privileged and remotest areas. Outcomes indicate that they perform very well.
In terms of access to higher education in Nigeria, the National Universities Commission has mandated universities to meet requirements for establishing distance learning programs. The country also has a well-established Open University with over half a million students. Another program includes the aggregation of content into a national repository that is accessible to all tertiary institutions. They have their own open online courses with local content and can connect to global MOOCs.

The distinction between the availability and accessibility of technology is an important one, as experienced in Cameroon. Certain conditions, especially teacher competency need to be met such that available technology can be more accessible. Some schools may have the devices, but not all the children have access to them. Policy may stipulate that all children must have access to primary and secondary education, but this is not always the case in the most remote areas – especially where there is no electricity or internet.

The challenge of delivering equitable education has clearly been made much harder by the school closures and subsequent hygiene and distancing regulations due to the Covid pandemic. Many countries in Africa have student to teacher ratios and class sizes as big as 80 – 100 are common. Reducing these class sizes has become necessary, putting further demands on the system. For example, in Cameroon where class size may be 100 learners (sometimes more), the ministry of education has been trying to make it a maximum of 50 students per class. To achieve this means lengthening the school day by a couple of hours and then splitting groups into morning and afternoon sessions. The extra burden is on teachers and school leaderships to maintain the continuity of education with these additional constraints.

One problem they have noticed in South Africa is that with zero-rated educational content through their e-portal, there seems to be a lot of hacking. They have had to deal with such hacking because of these people trying to piggy-back the zero-rated URLs. In Cameroon, UNESCO has helped the government put more than 2,000 lessons onto their learning platform but so far they do not have the full statistics on the uptake and use of these lessons by students. This data is essential to truly gauge any potential learning losses and monitor student progress.

Namibia has its “Kopano” online education platform which is a web-based system for educators to get access and then actively contribute to the national collaboration opportunities to enhance current teaching, learning and educational management practices. As well as information, teachers can upload learning materials for students. Another online services is “Notemaster Namibia,” which is a free e-learning platform tailored to the National Institute of Educational Development (NIED) curriculum, providing access to locally authored junior and senior secondary syllabus specific content. The

platform connects all those in secondary education across Namibia, empowering teachers by giving them the tools to create and share their own digital content. Yet access to these platforms is still limited because of inequitable internet connectivity across the country. The government is trying to meet the demands of accessible online education, but the challenges are substantial.

Mobile phone access is universal in Zimbabwe (99.9%), so the ministry of education capacitated teachers with assistance funding from UNESCO to train disadvantaged teachers from data advantaged environments so they could use the mobile phones for teaching. Additionally, they compiled the 2020 live lesson recordings and distributed them on memory sticks and radio sets to all disadvantaged schools. They are yet to implement studio recordings for television broadcast but still managed to have video recordings with sign language for the hearing impaired. Even so they found this a challenge because, even compressing the data still takes up a lot of space. Creative working with the technology resources available is a common theme across Africa.

One project in South Africa that has helped determine ICT readiness in schools has been the Presidential Youth Employment Initiative (PYEI) – Basic Education Employment Initiative (BEEI). Here the ministry of basic education seeks to provide unemployed young people employment and training opportunities in the education sector. Candidates are placed in schools from 1st November 2021 to 31 March 2022 as education assistants and general school assistants. This includes ICT support and e-Cadres who add value in the classroom by assisting teachers and learners with troubleshooting of ICT equipment and uploading content onto educational devices. They have of course seen the challenges of access to infrastructure and inequalities this leads to. That said, it has provided valuable on-the-ground information to the department of basic education and supported the need for transformation given the impact of Covid. The aim is for e-Cadres to be deployed in all public schools.

The equation is simple. Without devices and without the prerequisite ICT infrastructure, we will not achieve equitable access or inclusive pedagogy across education systems in sub-Saharan Africa. Then the starting point becomes teachers properly utilising education technology which will result in improved local content development relevant to curricula. The question is how much governments then choose to embrace the use of ICTs in education, because it is a policy decision to have both universal access and empower teachers in digital pedagogies. With the right competencies, technology can then be used to enhance learning, develop skills, and produce a wider spectrum of learning outcomes.

2.3 Gender Equity and Inclusivity

Gender equity is a top priority for educators in South Africa. It is a huge matter that is addressed through legislation and accompanied by on-the-ground practical solutions such as provision of sanitary towels for girls, and education on teenage pregnancy as it is during these young teenage years that girls are most at risk of dropping out. When they do get pregnant, girls still come to school until that time they are unable to. When they are home the law puts expectation on school principals, teachers, and parents to ensure that these children get the learning materials while at home. South Africa is serious about protecting the rights of girls and removing any stereotyping. The issue of stereotypes is also addressed within the learning materials and curriculum content.

A specific effort is made to make sure that the content and materials uploaded onto learning devices in Ghana is reviewed by experts in gender equality and social inclusion. Equally in Botswana, they make sure their curriculum development and evaluation does not have content that encourages inequality.

In Malawi, only 16% of learners proceed from primary to secondary education, and from there only one of the sixteen will make it to university. Hence, only one student per hundred from primary education makes it to higher education. Accordingly, the government believes that digital and online education can increase access. The Ministry of Education has a newly established directorate for open and distance learning in order to roll-out e-learning through all the education sub-

sectors. In June of 2021, the World Bank approved $100 million financing from the International Development Association for Malawi to support increased access, particularly for female students and their skills development. This is known as the "Skills for a Vibrant Economy (SAVE) Project," which is designed to provide skills development in tertiary institutions and vocational education and training, with special attention to empowering women and digital literacy. The government stills needs to find the resources so it can deploy wireless technologies and is has reached out to development partners and the socially responsible private sector in Malawi. The bottleneck to equitable access is the financing.

In partnership with UNESCO Ghana, STEM (science, technology, engineering & mathematics) clinics for girls have been introduced to increase female participation in STEM-related courses in secondary schools and education. The STEM clinics are designed to overcome the false belief that science-related subjects are more suited for boys and give a unique opportunity for girls to interact with young female scientists and learn of the career opportunities offered by studying STEM subjects. The Stem clinics are part of UNESCO's broader partnership for girl's and women's education in Ghana to resolve gender issues that may include discriminatory practices and gender-stereotyping in communities.

In many countries we are seeing plenty of activity to eliminate the stereotyping of women as possessing fewer digital skills and less-efficacy that prevents girls from developing ICT competencies. South Africa, for example, has introduced coding and robotics into its curriculum, starting full-time in January 2022. Officials in both the federal and provincial governments have already laid a great deal of the groundwork with their outreach into schools and communities such as coding clubs for girls and private sector operators like Vodacom have launched their #CodeLikeAGirl initiative. Such programs aim to develop coding skills and valuable life skills for girls, encouraging them to consider the uptake of ICT and STEM subjects. They teach lessons in online safety, cyberbullying and provide influential mentors for the girls to inspire them to be passionate about technology and its possibilities.

African governments are keen to ensure inclusivity and have educational codes of practice for people with disabilities but special needs education on the continent is under-resourced and the most disadvantaged face challenges. The infrastructure is not conducive, physical access to educational venues is limited to those with disabilities and notably there are not enough qualified instructors and special needs educators. The pandemic has further marginalised special needs students who do not have internet access, especially in rural areas. Potentially, the use of online educational resources can make a genuine impact in supporting these learners but of course the infrastructure needs to be in place.

Prior to the pandemic, Kenya had already been working to expand access to disadvantaged groups. The country has ratified the Marrakesh Treaty that facilitates access to published works for persons who are blind, visually impaired, or otherwise print disabled. Covid exposed the disparity amongst learners, which led to the Ministry of Education reviewing their policies for special needs education. They have the existing Digital Literacy Program and Kenya Education Cloud that have been upscaled and leveraged to better provide content to disadvantaged learners using technology such as tablets and offline resource centres. More can still be done to cater for people with disabilities to ensure the country has a fully inclusive education sector.

Another problem around inclusivity that was highlighted in the meeting was that in many parts of Africa, there remains considerable social stigma around supporting people with disabilities. Africa has a large population of children with disabilities; the prevalence of moderate to severe disability in children aged younger than 14 years is 6.4%. These children are often invisible in society because of stigma and discrimination. They face many physical barriers in daily life, discriminatory practices, and even direct abuse. For example, children with speech impairments are at five times greater risk of neglect and physical abuse than children without disabilities, and three times greater risk of sexual abuse, according to a report by the African Child Policy Forum. Children with disabilities have valuable contributions to make to society but are kept from realising their full potential because of people's attitudes to disability. Does educational technology and e-learning offer a means to fulfilling this potential by giving those kids with disabilities the access to education they are currently deprived of?

In Ghana, article 25 of the Constitution embeds the educational rights of all children and the ministry of education has conducted extensive research into the inclusivity of children with disabilities. Results indicate that most of the teachers support inclusion of children with special needs in their classrooms but were concerned about the lack of appropriate resources for proper instruction. The most challenging issues for the teachers involves difficulty getting some of the children to follow basic instructions and getting parents to participate in the education of their children with special needs. Two important recommendations are for establishing

more parent-teacher associations such that parents have a more active role in Ghanaian schools and employing more special education teachers along with nurses, and social workers to assist teachers in Ghanaian classrooms.

In parts of South Africa education departments have been working with local universities through their corporate social responsibility (CSR) programs to develop assistive technologies for learners with disabilities, such as an app for those with hearing impairments. The Ministry of Basic Education has encouraged the ring-fencing of budgets for assistive technologies and have separate procurement for special needs education such that no learner is left behind.

An essential ingredient of inclusivity is capacitating the teachers who require the training in both their own digital literacy and utilising education technology for online and digital learning. Dedicated pre-service and in-service programs remain limited for professional development, especially in the design of lessons for use in a virtual learning environment.

Kenya has been making strides in supporting special needs education. The use of assistive devices is being adopted in more schools and the ministry of education continues to develop innovative programs that leverage technology for more inclusive education. This has included the provision of devices to support learners with visual impairments for examinations. Yet, the challenge is not being able to reach all children. So while there is an uptick in the supply and use of assistive technologies they are yet to reach universal provision.

South Africa has a very robust legal framework that guarantees the right to education and the approach of the Department of Basic Education is to ensure this right is protected. This includes having a multi-dimensional approach to meeting the needs of hard to reach learners. Technology in education continues to experience challenges in the most remote areas, especially when having to use internet dependent services as experienced with school closures. So to ensure inclusivity, a mixture of radio, TV, offline content, storage devices, and printed materials being delivered to schools and communities have all needed to be employed during the pandemic.

One suggestion to reduce exclusion from educational technologies was to give those teachers in remote areas extra motivation be equipping them as a priority and offering career-based incentives such as increased renumeration and promotion. Reaching communities and educators in areas of conflict remains the toughest of challenges. Even low-tech solutions like TV and radio are not always accessible, so a suggestion is to have community hubs equipped with the necessary technologies and able to support neighbouring schools to improve local accessibility.

Across Africa we find gaps in education between boys, girls, learners with disabilities and those from the poorest groups. Educational technology, supported by comprehensive policy implementation has the capability to be an equaliser and to mitigate gender and inclusivity divides. The World Bank has an estimate of “learning poverty” based on reading and understanding at primary level. In low- and middle-income countries “learning poverty” stands at 53%, while for the poorest countries, this is 80% on average. With the impact of the Covid pandemic, limited access to remote learning means that Learning Poverty is likely to worsen from 53% to 63% especially in low-income countries if no remediation interventions are taken. To close these various divides by using technology, then policy must focus on the digital infrastructure, human infrastructure (teacher capacity, student skills and parental support), and the logistical and administrative systems needed to deploy and maintain an edtech architecture.

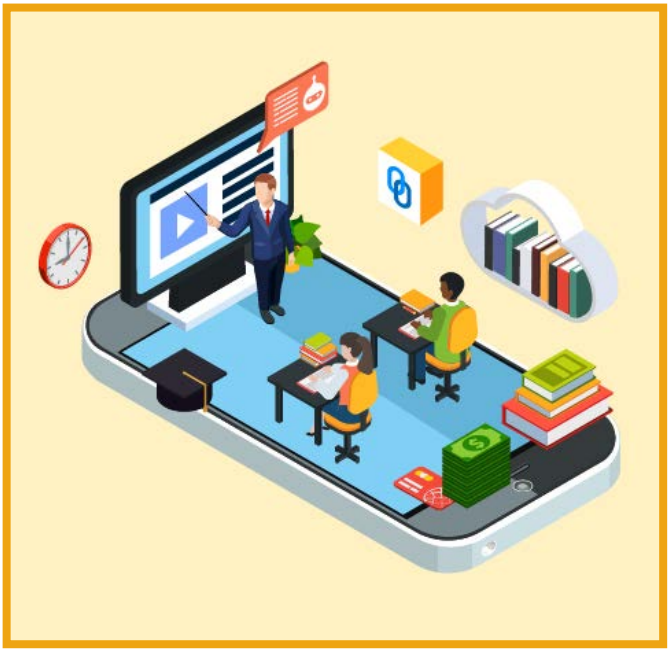
2.4 Policy, Collaboration and Local Development

In terms of the equitable use of technology and fair distribution of resources – both the devices and the infrastructure – a common sentiment in the meeting was that a top-down only approach from central government is not enough. Equity requires a polycentric approach involving all stakeholders. So districts and municipal councils should take greater responsibility in managing and identifying the schools to ensure they offer all students access to digital technology. Local councils, especially in rural areas, can also be more responsive in providing services and supporting schools where there are digital gaps, such as helping with installing ICT labs and creating community hubs for ICT, which several local schools can then use for improved connectivity.

Devices and the associated ICT equipment is not made in Africa. This is an area that needs to be addressed by government because without the local means of production it means all aspects of the technology ecosystem become imported. Not just the devices themselves but the spare parts and the skills required for service and maintenance. There needs to be local knowledge and capacity to develop the infrastructure, assemble and repair devices which as well as helping better equip the education sector will also reduce electronic waste and of course contribute economically. Technology inward investment should be a key pillar of sustainable development that

contributes to the transformation of equitable access and inclusivity. There is a fantastic opportunity here, including promoting greater participation of girls and women in the tech sector. These human resources need to be backed up by local capital markets that free up money for investment.

It is not as though African countries are not committed to growth in their education expenditure. Ethiopia commits 27% of its government budget to education. In Ghana that figure is 20%, similar to Kenya. Education is often the largest component of federal budgets. Yet a sizeable proportion of education budgets (80% +) are spent on wages and all African countries have young populations, increasing enrolment rates and are having to spend more on girls education to meet their commitments to gender equality. Investment in ICT infrastructures and national digital transformation strategies benefit the whole of society and not just the education sector. Although education greatly needs that ICT investment, the responsible education ministries cannot do it alone without a whole government approach. One idea proposed was for an African education coalition that brings together the telcos, device manufacturers and multilateral financing partners to work with the governments in Africa. Special mechanisms are needed reduce the burden of ICT enablement on individual education departments to achieve the desired equitable access.



In Nigeria, after a continued period of rolling out new e-learning policies and implementation strategies, they still identify major gaps in the accessibility of devices and in the ICT infrastructure. They have found that continuous connectivity is not always a necessity in the education setting when offline solutions are employed. Yet a country with such a large population can experience problems and challenges that are accentuated by the diversity of a nation of 36 States – each responsible for their own implementation. The federal government is implementing smart schools, producing e-learning solutions, and determining content. Such solutions can be expensive and there is the danger of wasting resources when implementing modern technologies.

Rwanda has been making every effort to ensure they have enough devices for schools, especially at primary level. In 2015 they went into partnership with the manufacturer *Positivo GBH* who established an assembly plant in Kigali to produce a range of devices. These included a 'low-spec' platform for primary school level and from there they built a repair and service network for devices with the support of Rwandan polytechnics who can use original components by partnering with the manufacturer. This then gives an opportunity to train students at the polytechnics in such technology. The issue of repair and renewal needs to be carefully considered by policy makers because devices do not last forever, and supply chains need to be secure to ensure replacement of parts. Still Rwanda is not getting enough devices fast enough and are engaging more manufacturers. They are also aiming to ensure that all teachers have. Technology gets used more if the teachers are more proficient and use edtech to collaborate, produce their own content and prepare lessons.

In Kenya they have learnt that although teachers are the drivers of ICT integration, there has been the need to change mindsets about the use of learning technologies in the classroom. With the implementation of a new competency-based curriculum, there has been a substantial need to build capacity and train teachers during the school holidays as well having continuous online training. To build such capacity requires a multi-sectoral and whole government approach. The Ministry of Education cannot do it alone. Several government agencies need to work together from the ICT authority to the electricity supply board.

This multi-sector approach is equally reflected in Rwanda where they now have a chief digital officer in every ministry, managed by the Ministry of ICT. This is a team that harmonises all the government systems and in the education ministry, within their internal agencies. The result is that when deciding on implementation, such as school devices, there is a robust policy base that supports proper implementation. Any such projects require a huge

amount of resources and in the case of edtech there should be an appropriate mix of low and high-tech. For example, supplying devices to schools requires a huge budgetary commitment. One device for every school is not effective. Many devices for just selected schools is also ineffective. Yet by combining a range of technology solutions and putting teachers at the centre can prove to be far more successful alongside a coherent whole government approach that delivers the necessary infrastructure requirements.

In terms of improving ICT accessibility for those in rural and remote areas there are plenty of options when using centres and schools as hubs that can serve communities. Expensive installation costs can be reduced by giving one hub location high quality access, devices, and a computer lab for downloading online content and educational resources. These can be transferred to offline technologies such as CDs, DVDs, and memory cards along with education applications which can all be delivered to several schools in the nearby district in a manner no different from delivering printed materials.

Many officials in the meeting commented on the importance of governments forming stronger long-term partnerships with companies and solution providers for edtech. Covid has accelerated e-learning adoption and estimates are that the e-learning market in Africa reached a value of $2.2 billion in 2020. Domain knowledge is critical in the development of quality products and services, processes, and technology, and best practices and norms can differ across regions. Delivering localised solutions for African markets is also that much easier when leveraging capabilities of local partners, whether it be local content that is curriculum-aligned, translation into local languages, or a local support team on the ground that can offer schools the technical support that they need to make blended and e-learning a success. According to a report by the IMARC Group, the African e-learning market is expected to grow at a compound annual growth rate of 11.5% a year and if governments can leverage this growth through partnerships then edtech can make a valuable contribution in meeting the issues of access, equality, and affordability. An important ingredient of this will be to develop more African edtech companies who are often innovative, resourceful and understand the local market but are constrained by lack of access to capital.

Another approach for improving equity is learner-centred education that can have its potential fully realised by using educational technology. Equity in education demands that all students experience empowering and impactful classrooms, and student-centred education gives children the trust and respect to make important decisions about their own learning. The pedagogical consensus is that interactive learning leads to deeper comprehension and better knowledge retention. This means moving away from the traditional role of the teacher who is seen as the ultimate source of knowledge and wisdom. Using technology to support the learner-centred approach can help less privileged students feel more confident along with developing social-emotional skills that deliver better on research, collaboration, and critical thinking. Furthermore, with the expansion of online education, as experienced over the last 18 months, the student-centred approach means kids are better prepared for self-learning at home and while accessing virtual learning environments.

Any discussion of equitable access in Africa, requires that e-learning initiatives must have offline solutions to complement the online platforms. In Ghana this is achieved with the *iBox* offline solution in schools along with the online *iCampus*. Edtech service providers need to be cognisant of this requirement and appreciate that purely web-based educational platforms are not attractive to policy makers if there is no complementary offline solution. Specifying and implementing an online/offline educational technology package then helps with uniformity and standardisation, making it more practical to train teachers on one unified platform.

In Cameroon, the major challenges remain inadequate energy supplies and poor connectivity, yet they have been making every effort with international partners like UNESCO and the Global Partnership for Education (GPE) to build a learning management system called "*My School Online*." Here they have focused on basic education and the key fundamental subjects, while trying to have the content as interactive as possible, encouraging children to navigate and self-learn.

When resources are limited and network connectivity is a widespread problem, then to mitigate against creating further inequality, it requires creative thinking and solutions. Such creative ideas may include better collaboration between countries to ensure the telecom operators zero rate educational content and possibly share routing services. This can be leveraged by local communities having an IT hub for uploading and downloading of materials and then being supported with local area networks connecting schools. In the case of devices, creative ideas such as asking communities to help with older or unused devices was a suggestion that they have seen work in South Africa. In other words, normal and existing formal means of acquisition do not work enough for equitable distribution of devices and creative

methods involving communities and society are key components to meeting the challenge of inclusivity.

The idea of having a major in-country IT centre for education that distributes content to remote schools through local networks has met with encouragement in Cameroon. Such a national education server, connected to the internet, is an effective solution especially if accompanied by solar power. They are also working with partners, like UNICEF whose support includes the distribution of tablets to many schools in rural areas. Cameroon has also recently revised its National ICT Policy, with recent drafts, in response to the pandemic, include distance education, e-learning, infrastructure development, digital skills for teachers, connectivity and the development of new instructional materials appropriate for the digital economy. Overall the policy puts emphasis on child development along with building a more responsive and resilient educational system.

Even in areas of good connectivity where the huge choice of online resources can be used, still does not address the ability and methodology of how teachers transition the children from traditional classroom learning to online learning. The broader challenge, before committing resources to, say large device procurement programs, is to define and accredit the required pedagogical approaches needed for such a transition. The upskilling of teachers should ensure they remain at the centre of providing this learning and a policy framework needs to give guidance on how teachers can adapt. This includes doing more in preparing teachers on how to facilitate learning via the use of technology.

UNESCO's project in Tanzania met the challenge of equitable access for the most remote and underprivileged communities by providing tablets to around 2,500 children. Without electricity, they installed solar charging stations and uploaded data in advance. The project was extraordinarily successful in improving reading, writing and numeracy skills but a noticeable outcome was the challenge faced when trying to upscale such a project. Firstly, there is the issue of cost. Tablets mean an increase in the expense of delivering education and secondly there is the unaccounted for problem of replacing devices. They experienced almost half the tablets breaking and needing to be replaced. If such a project is upscaled by the government nationwide then it becomes very costly. The ministry of education is willing to adopt education technologies, but the budget required is simply too high.

Kenya, which has invested heavily in its digital literacy program, in ensuring connectivity for over 28,000 public schools has still had to face the dangers of a widening digital divide in the most disadvantaged and hardest to reach areas. As a matter of policy, the government has established over 1,000 locations with free internet access and negotiated with internet services providers for a minimum of 100 Mb free data daily for educational purposes. So even using a mobile phone, a learner can get 100 Mb for free. Access across the country is not 100% but such policies and agreements with operators has brought much more equity to the e-learning landscape. The government continues to craft innovative ways to reach those most marginalised pockets of the population that do not have equal access.

Prior to the Covid pandemic, Cameroon's approach to inclusivity and fair access in education was the establishment of regional community centres and hubs with connectivity and the ability to provide multimedia services. Funding for these was limited and procurement of reliable and robust technology was not judicious enough. The advent of Covid shifted the emphasis to online learning, though the impression is that more needs to be done in terms of coordination between various government agencies and the need to adjust teaching and pedagogy in line with the requirements of e-learning. Fulfilling the potential of technology in education requires sufficient policy and administrative coordination along with a more learner-centred approach that moves away from the traditional teaching practices.

One of the big shifts in experience for educators during the pandemic has been the need for far greater communication and collaboration with parents. This also involves being aware of the well-being of parents who have faced pandemic-induced

financial pressures as well as having to cope with their children being at home during closures or timetable rotations. Online learning means parents must dedicate time supervising their children at the expense of work, especially for the younger early learners. Frequent communications are essential in making sure parents are coping with the situation and checking on the well-being of children who have not attended school in many months. As far as edtech and blended learning are concerned, then parents expect that online lessons should be of comparable standard to in-classroom instruction. If governments are committed to investing in more e-learning, then engaging with parents is essential for policy makers. Current e-content is often not attractive to students and so parents need to spend more time with their children to teach them the most important skills.

2.5 Closing Statement

Richard King

This closing statement in conjunction with the presentation in Appendix B.

Education Development Trust (EDT) is a global not-for-profit organisation working exclusively in the education sector, including in partnership with ministries of education to conduct research and global best practices to offer advice and guidance. Technically, and most importantly, EDT manages the delivery of large-scale national education reform programs working through education systems, and across the sub-Saharan region in many of the countries that are represented in today's meeting, including Rwanda, Zimbabwe, Ethiopia, and Ghana.

So, what has and has not worked in education technology? We know that it has the potential to transform, but we also know that there are difficulties, and we know that there have been many investments in hardware that have not necessarily had the impact and outcomes expected. EDT has tested the approaches and the impact of student-facing applications in classrooms and have witnessed the barriers that exist and the risks of increasing inequality. However, what we have learned, is that our perspective on how to understand how technology can help to drive improvements in access, equity, and inclusion for the most difficult learners to reach, we think involves potentially three steps.

The first step is to understand what approaches within education system processes make a difference to access, equity, and inclusion. The second is to determine contextually appropriate ways to embed those processes in local systems to have an impact.

Then the third step is to appreciate and understand how technology can play a role to support system processes. So the principle is that we start with the people, the education system processes, and not the technology. Then we look at how the technology can support those things that we know work and make an impact.

There are two important processes that EDT has experienced in the sub-Saharan region that do make a difference for access, equity, and inclusion for the hardest to reach. The first is the community-school relationship, and the second is how to effectively build capacity for education professionals. This is not just teachers but also the people that support teachers, which means school leaders and support staff around the school, often at district level. Two examples from the work of EDT in Kenya with the Ministry of Education and the Teacher Service Commission, and in Rwanda with the Ministry of Education and Rwanda Education Board illustrate these process.

Looking at Kenya, like many countries in response to Covid, schools were closed and one of the key challenges was working to ensure equitable access for up to 90,000 girls in the most marginalised communities in Kenya, between the urban slums and semi-arid areas. So the question was how are we going to maintain access for these girls that are in incredibly challenging situations? The Ministry of Education quickly adopted technology to help to promote remote learning through phones, TV, and radio, but knowing that the girls were going to struggle, because they would not necessarily have access to those devices. One of the things EDT is doing is to work with community health volunteers as part of the program. They are engaging within communities to try and support girls back to school. So EDT worked with the community volunteers because they were already visiting homes and communities to help deliver paper-based learning resources. In conducting some research to see what the impact of that was, we saw that television, radio, and mobile phones, did not cover, and give access to enough of those girls.

The results are remarkably interesting. We managed to achieve 90% learning continuity during Covid for the girls in the arid and semi-arid areas, which are the most difficult to reach. And that compared to about 40 to 50% of the comparator groups, and incidentally about 40% in the UK when schools were closed. This was very pleasing to see that there are ways in which we can use the community-school mechanism to ensure that we could drive access and use technology to enrich and support the school policy. Another quick example around data is when

working with community health volunteers using an education platform and monitoring real-time school web traffic and then able to supply that information to community health volunteers so they can intervene at a household level to ensure that we are supporting girls to stay in school and to learn. This has achieved 97% retention at primary school level and 88% at secondary level.

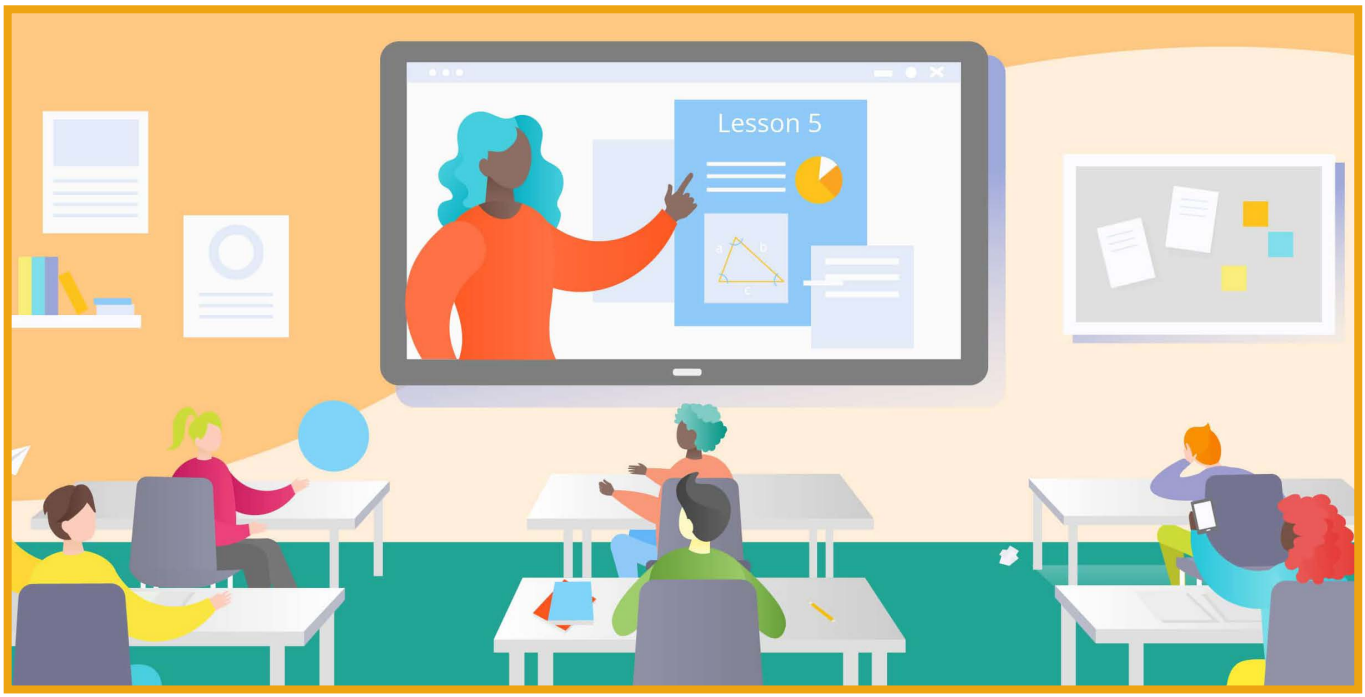
In Rwanda, a major part of the focus is on teachers, school leaders and support staff. From a disability perspective, which includes people working outside of the school with expertise around special needs education. So EDT has created a model with community of practice space for teachers, and then determining how technology can be utilised to enhance the model, making it scalable and more accessible. So this includes things like digitised materials, providing mobile phones with SD cards, having video clips that teachers can use via WhatsApp groups to enhance teaching staff collaboration. This approach has been effective. It has had an impact on teacher competence and pupil outcomes and was a mechanism that can still maintain access and support the teachers as they were trying to respond to the challenges of the Covid pandemic.

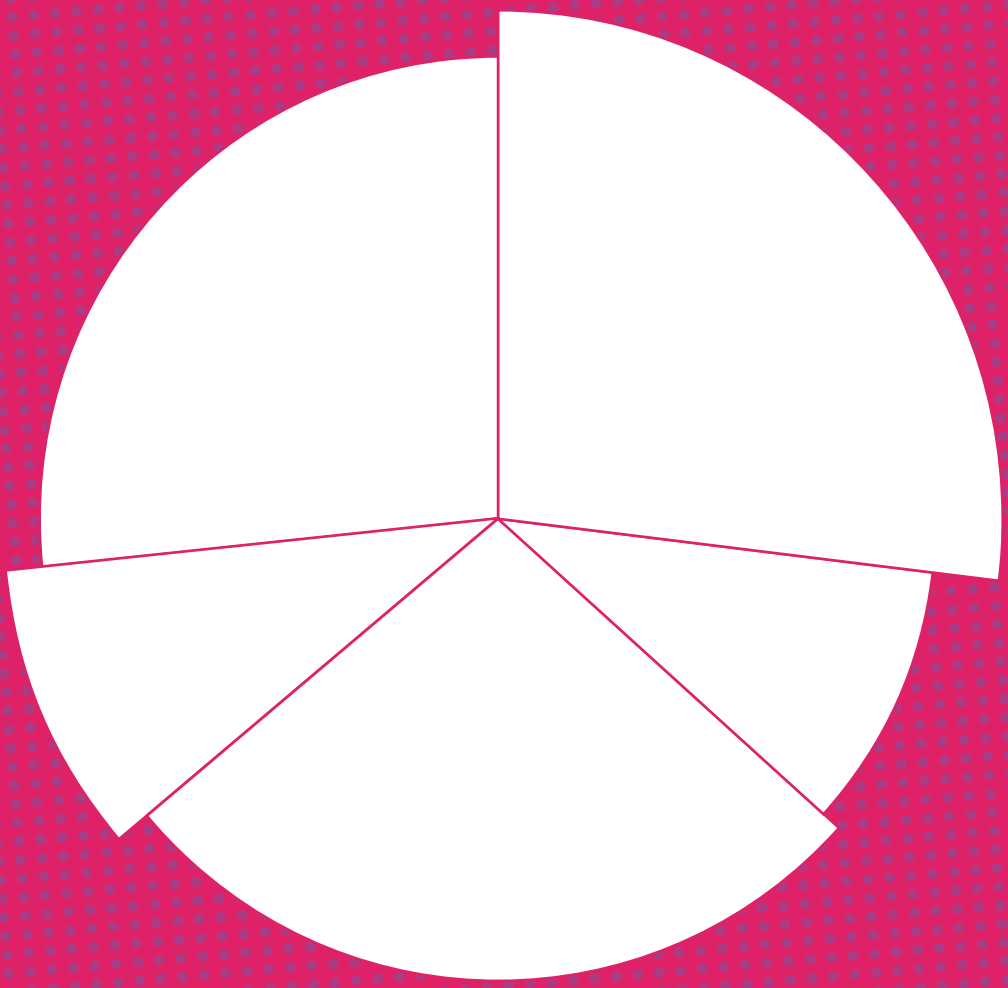
Some key conclusions for policymakers and implementers include the need to focus on the processes that are effective to access and inclusivity, supporting the fulfilment of SDG 4, leaving no child behind. The community-school is critical in encouraging students to stay in school. Also it is critical to focus on education quality. So if we want to make a difference to access, equity and inclusion, we need to think about how those processes can be supported by technology.

One typical example is that of a young lady participating in the program in Kenya from a county called Samburu, which is one of the most difficult places to grow up as a young girl. However, the girl, called Rose, had the support of community health volunteers empowered with real time data to encourage her and attend school. Rose also had teachers who were supportive digitally, including instruction in how to use tablets. This meant that the quality of education she received in primary school was improved, enabling her to achieve higher marks in the primary exams and motivating her to stay in school. So we need more success stories on what works to help girls succeed when ensuring equitable access. Education Development Trust has a deep commitment and long track-record in working with African countries, including multilateral partners, like UNESCO, to better understand how technology can create more success stories and help overcome the greatest barriers that learners might face.

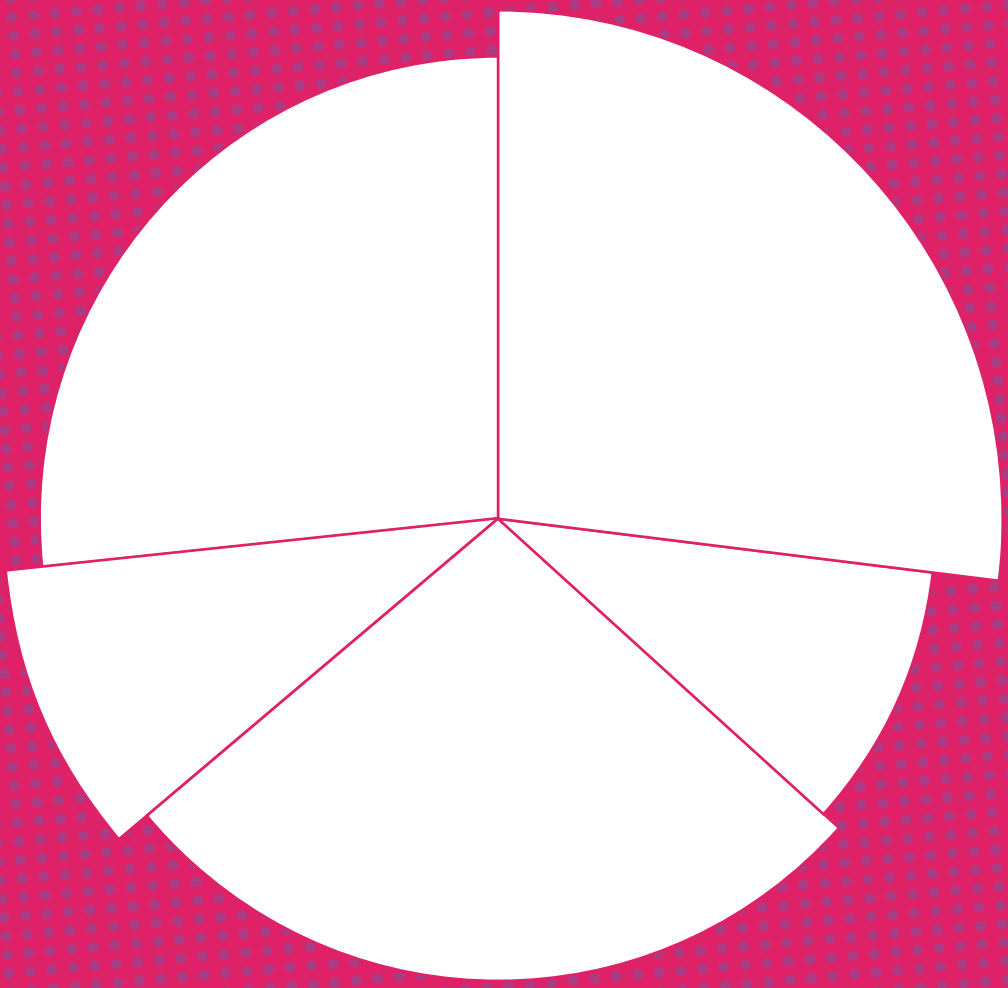
- End -

For further details or copies of this report, please contact john.glassey@brains.global





APPENDICES



APPENDIX A

unesco
Global Education Monitoring Report

2023

Concept note
2023 Global Education Monitoring Report
Technology and education

Africa consultation meeting with GOLA! / African Brains
Education technology: ensuring equity, access and inclusion

17 November 2021

Manos Antoninis, Director, Global Education Monitoring Report

en.unesco.org/gem-report

GEM Report role in SDG 4 follow up and review

Editorially independent team based at UNESCO since 2002 with extended mandate in the 2015 Incheon Declaration to:

Monitoring part

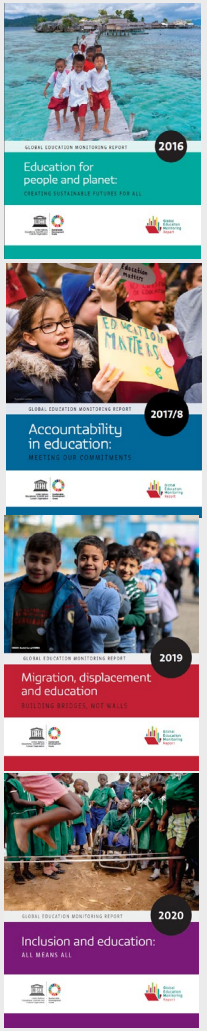
'be the mechanism for monitoring and reporting on SDG 4 and on education in the other SDGs'

Thematic part

'report on the implementation of national and international strategies to help hold all relevant partners to account for their commitments'

Previous GEM Report themes

2016	**Education and the SDGs**	Sep 2016
2017/8	**Accountability**	Oct 2017
2019	**Migration and displacement**	Nov 2018
2020	**Inclusion**	Jun 2020
2021/2	**Non-state actors**	Dec 2021
2023	**Technology**	**Apr 2023**
2024	**Leadership**	Jun 2024



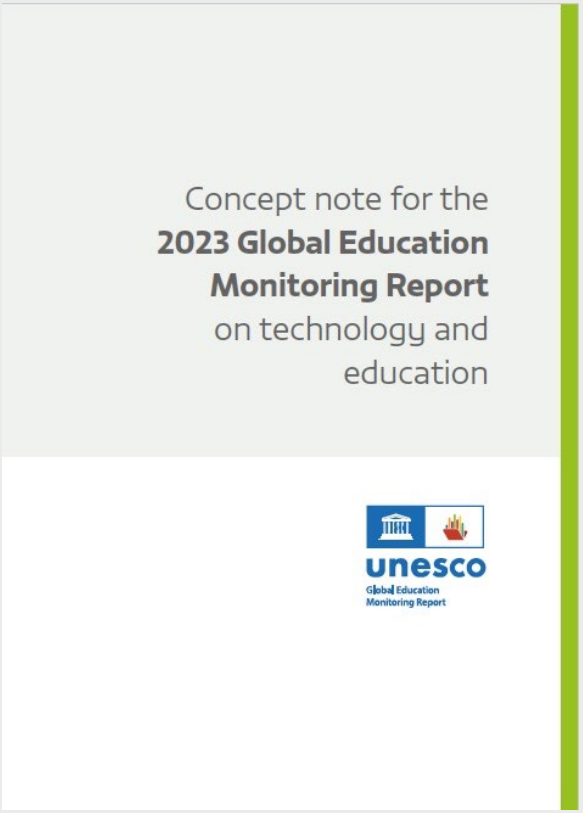
2023 GEM Report approach

Context

- Technology and SDG 4
- Covid-19 and the role of technology
- Technology in education divides

Focus

- Key education challenges and technology
- Minimum conditions for technology to support education
- Other technologies outside ICT



Framework (1): Challenges

What is the education we want? Can technology help?

1. Access, equity and inclusion

Access for disadvantaged groups: Hard-to-reach learners

Access to content: As much in as attractive and cheap formats

2. Quality

Basic skills: Transform pedagogy, engage students, improve learning

Digital skills: Provide new skills that technology demands

3. Technology development

How can education systems support technological development?

4. System management

How to make assessment and other education management data more relevant and widely used?

Framework (1): Challenges

What is the education we want? Can technology help?

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How can education systems support technological development?

4. System management

How to make assessment and other education management data more relevant and widely used?

Framework (2): Minimum conditions

What conditions to be met for technology to support education?
How can education systems:

1. Access to technology
…ensure that all learners have access to technology resources?

2. Governance and regulation
…protect learners from the risks of technology?

3. Teacher preparation
…support all teachers to teach, use and deal with technology?

Overarching questions : access equity and inclusion

▶ Expand access for disadvantaged groups

Basic How to provide education to hard-to-reach learners (e.g. remoteness, conflict)?

Higher What is your experience of massive open online courses?

▶ Equity and inclusion

How to distribute infrastructure and devices equitably?

How are assistive technologies programmes implemented?

How to address stereotyping of girls?

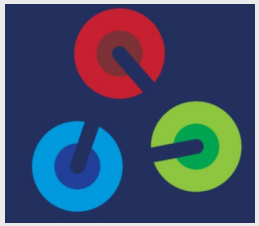
▶ Access to content and open education resources

How can more knowledge reach more learners in more attractive and cheaper formats?

Next steps

Online consultation
What do you think should this report cover?
Send your comments and recommendations!

New chapter of **PEER** country profiles
www.education-profiles.org



unesco
Global Education Monitoring Report

Download the 2023 GEM Report **concept note**
Join in the online **consultation**

https://en.unesco.org/gem-report/2023/technology

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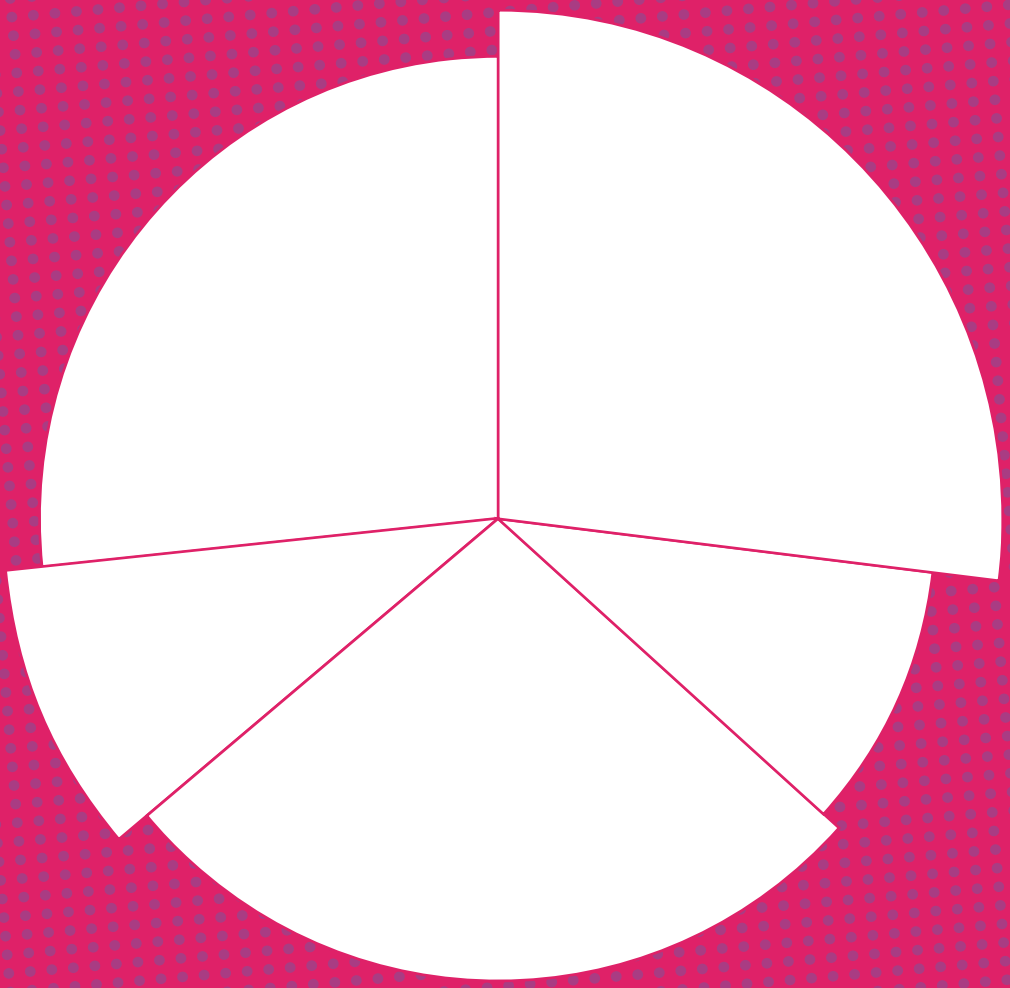


APPENDIX B

Education Development Trust

UNESCO GEM Report Consultation Meeting

Education Development Trust closing remarks

RICHARD KING
Regional Director, Sub-Saharan Africa

Who we are

An **international not-for-profit organisation** who combine global research, technical consultancy and delivery expertise to deliver innovative, impactful **national education reform programmes with governments around the world.**

Our purpose

To provide **evidence-based sustainable solutions that transform lives through education.** We do this by strengthening education systems, transforming teaching and learning and working to ensure effective transitions into work.

Education Development Trust

Basis of remarks

- Based on direct experience
- Driven what we know improves access, equity and inclusion for learners
- Considering relationship between community (push) and school-based (pull) factors
- Underpinned by a focus on quality
- Considering where technology adds value and how, to enhance such processes

Education Development Trust

ACHIEVING ACCESS:

- Responding to Covid-19
- Unlocking the community-home-school link

Education Development Trust

KENYA: Maintaining **gender access** during Covid-19

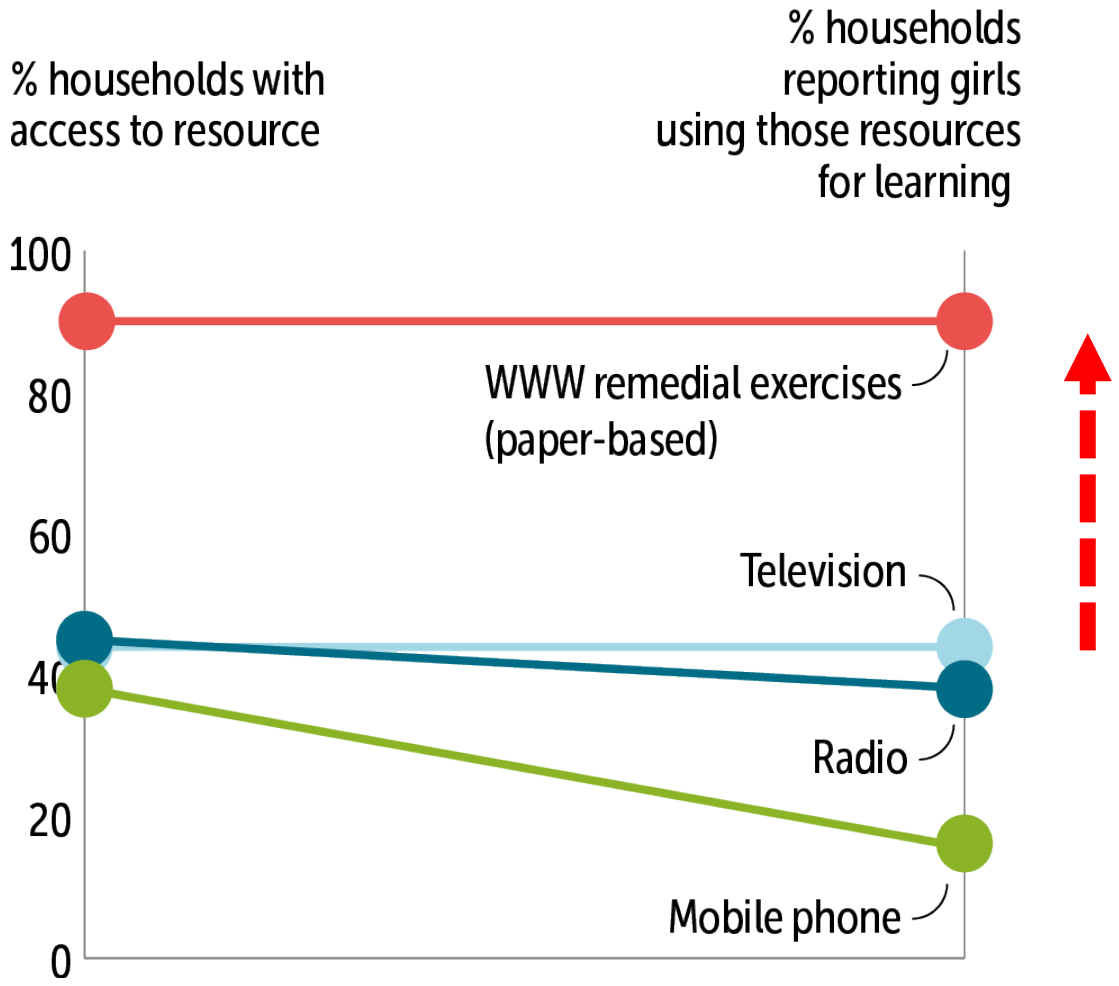
Mixed-methods learning continuity model with low-cost technology

- Leverage community – working with **Community Health Volunteers (CHVs)**
- +Radio
- +WhatsApp

Education Development Trust

The difference made:

- Technology alone could only go so far
- Access was an issue, particularly for technology within households for girls
- Facilitation & mediation **by the community** was key
- **Reshaped** school-community relationship



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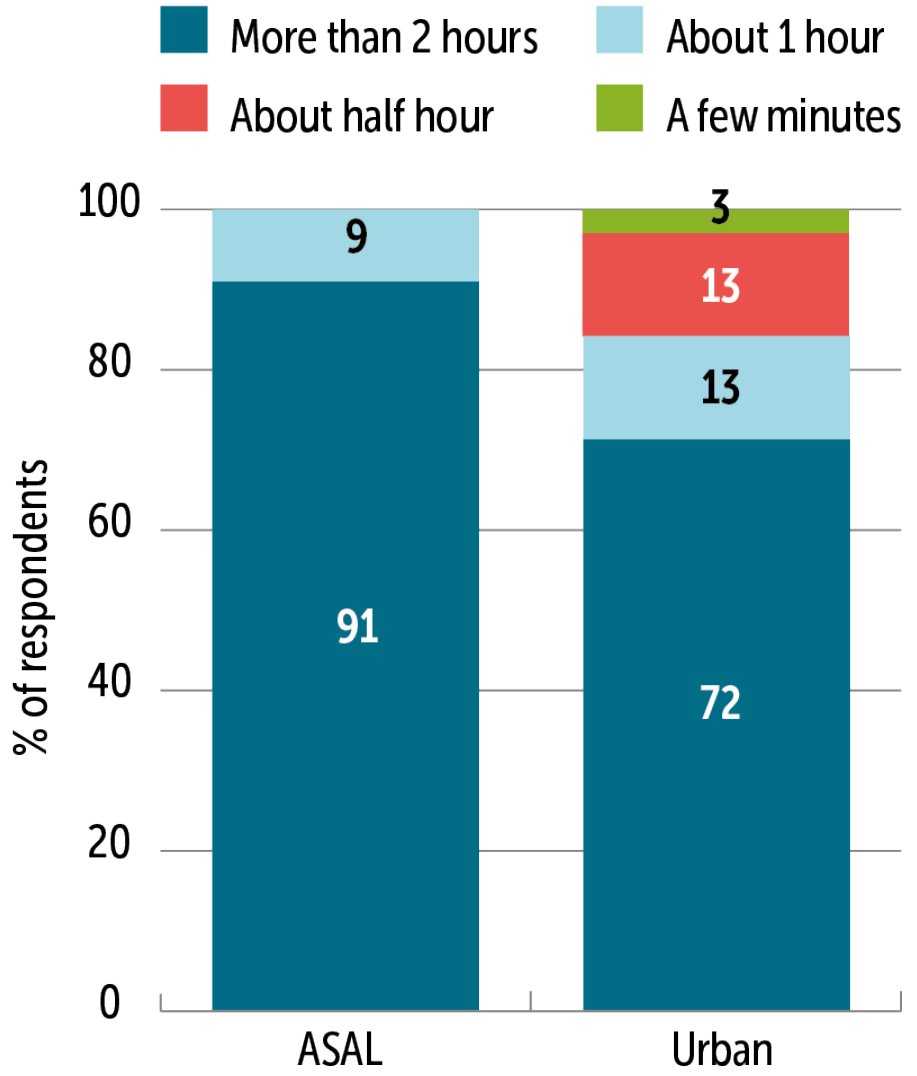
The impact of the model:

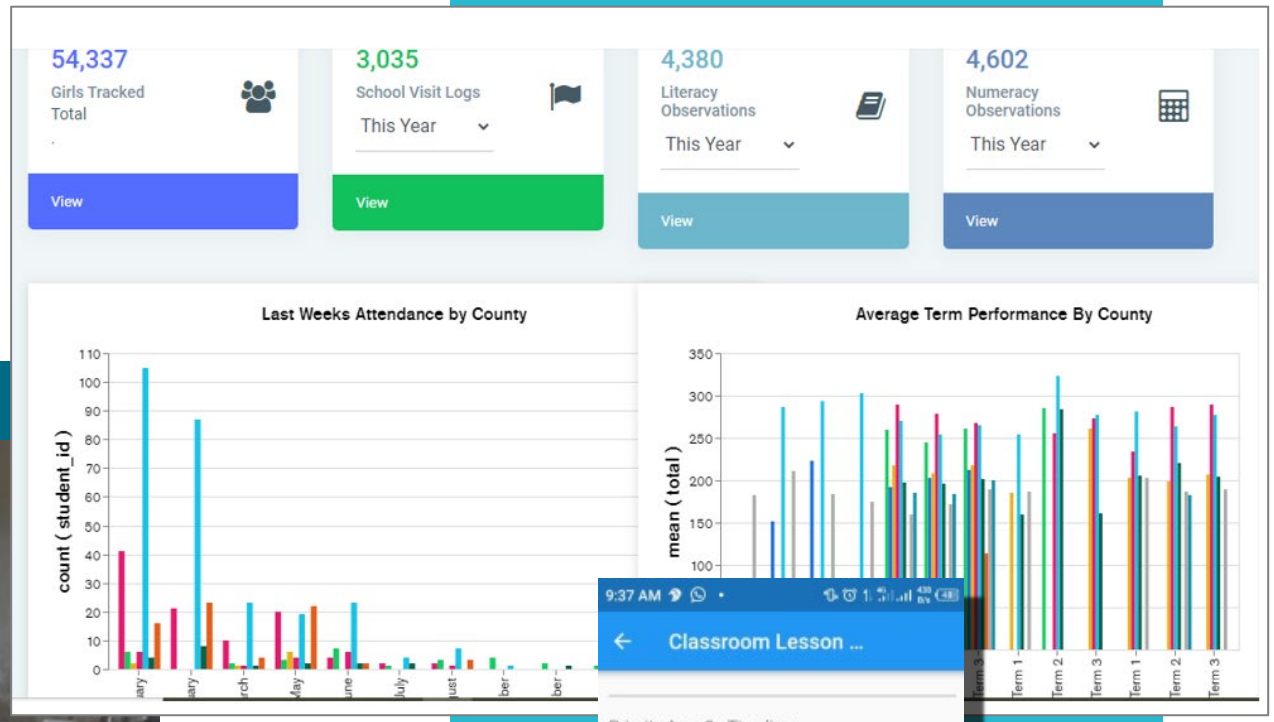
Over 90% of girls supported with this intervention spent **+2hrs a day learning** during Covid-19 (vs 40-50% in comparator group)

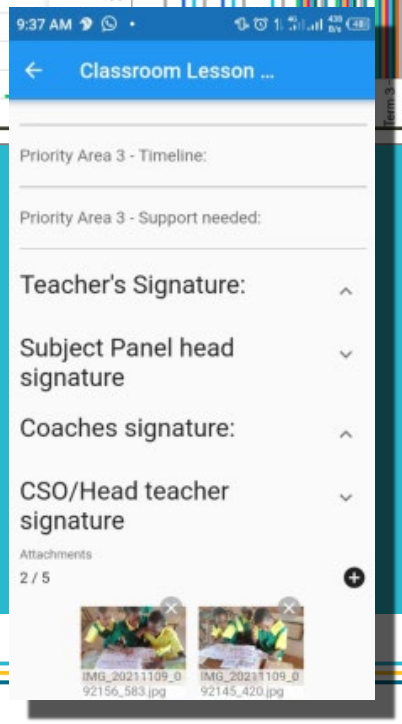
*UK = ~40%



Education Development Trust

More widely: tech-enablement





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Overall access improvements

- Huge improvements for the most marginalised girls
- Key = mobilising community to drive access (push)
- Connecting the community with the school
- Tech to power this

Girls' education outcomes	2013 (baseline)	2021
Retention in primary school	77%	97%
Transition to secondary	n/a*	88%

*national average

Education Development Trust

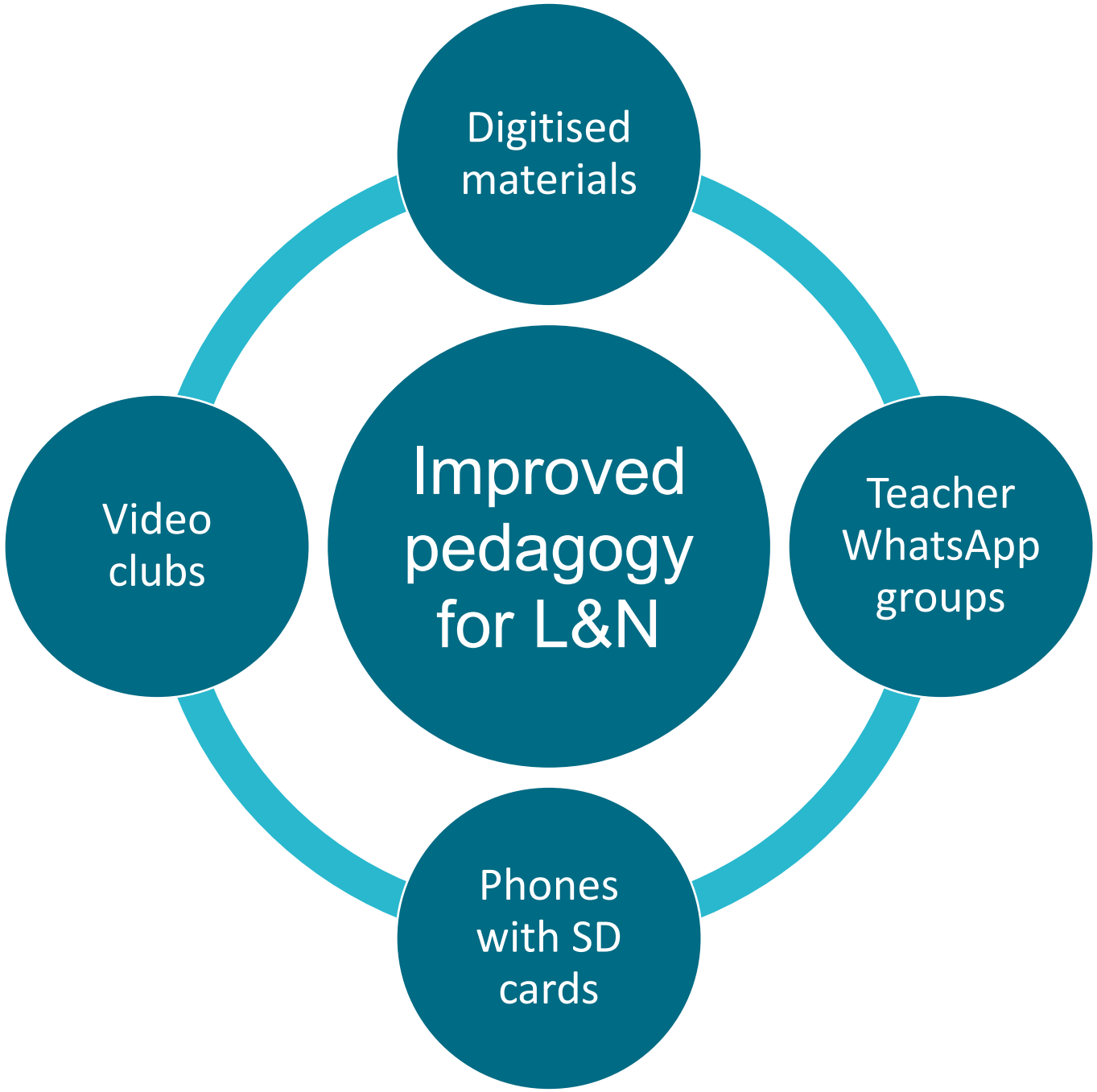
ACHIEVING EQUITY AND INCLUSION:

Empowering education professionals

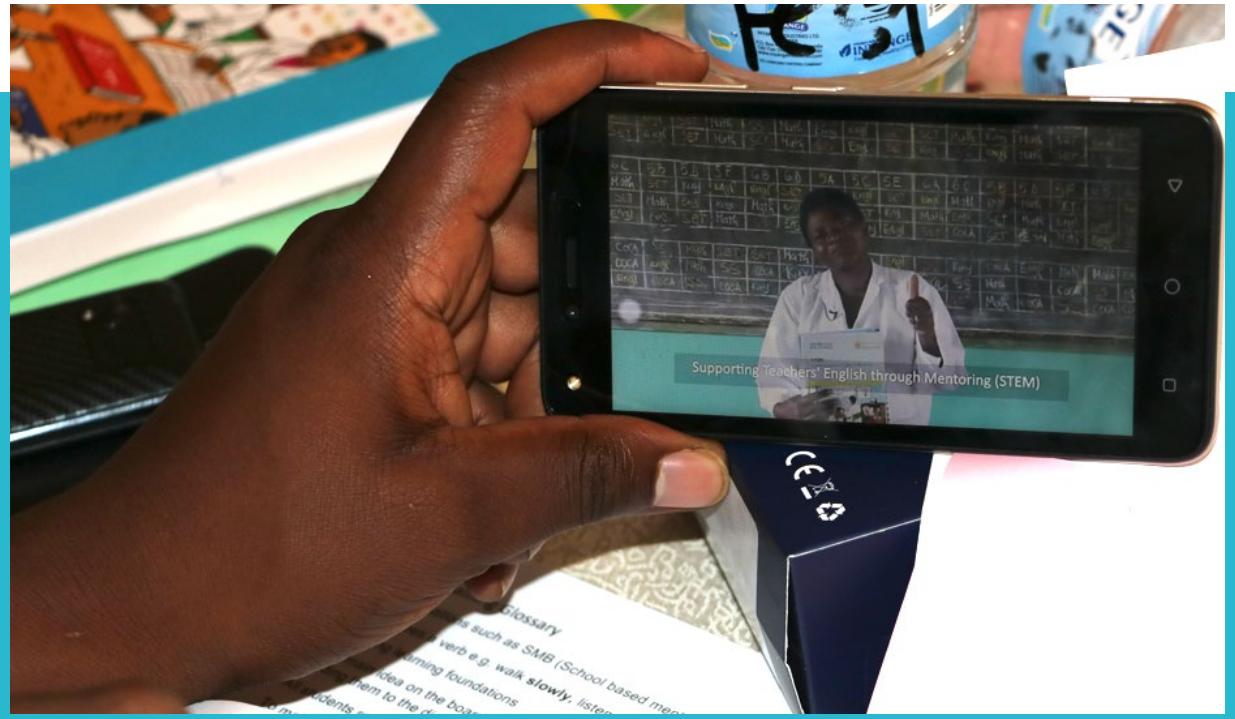
Transforming lives by improving education around the world

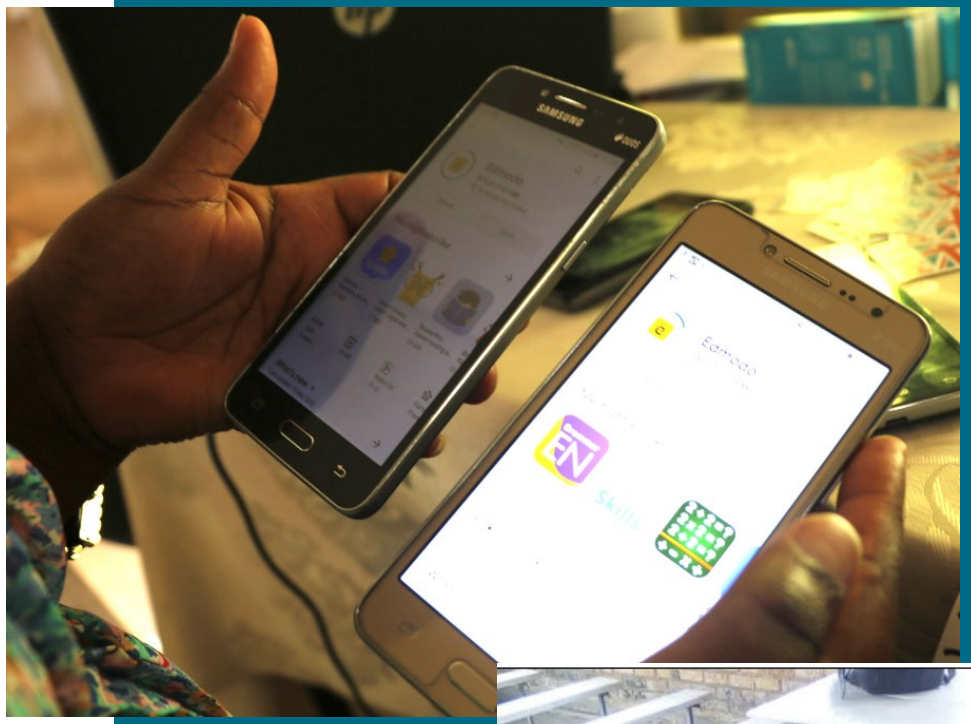
RWANDA:
Tech-powered CPD

- Driven by **CoP model**
- Tech-supported teachers working together
- Role of **Headteacher** discovered to be key
- Headteacher online course
- Focus on **disability** – disability specialist teachers & working with communities



Education Development Trust





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RWANDA: The impact

- Improvements in teacher competence
- Driving shift in education quality
- Impact on learning outcomes

	2017 (baseline)	2019
% English teachers reaching benchmark competencies	10%	63%
% pupils at grade 3 reaching grade-level expectations in English	16%	28%

Education Development Trust

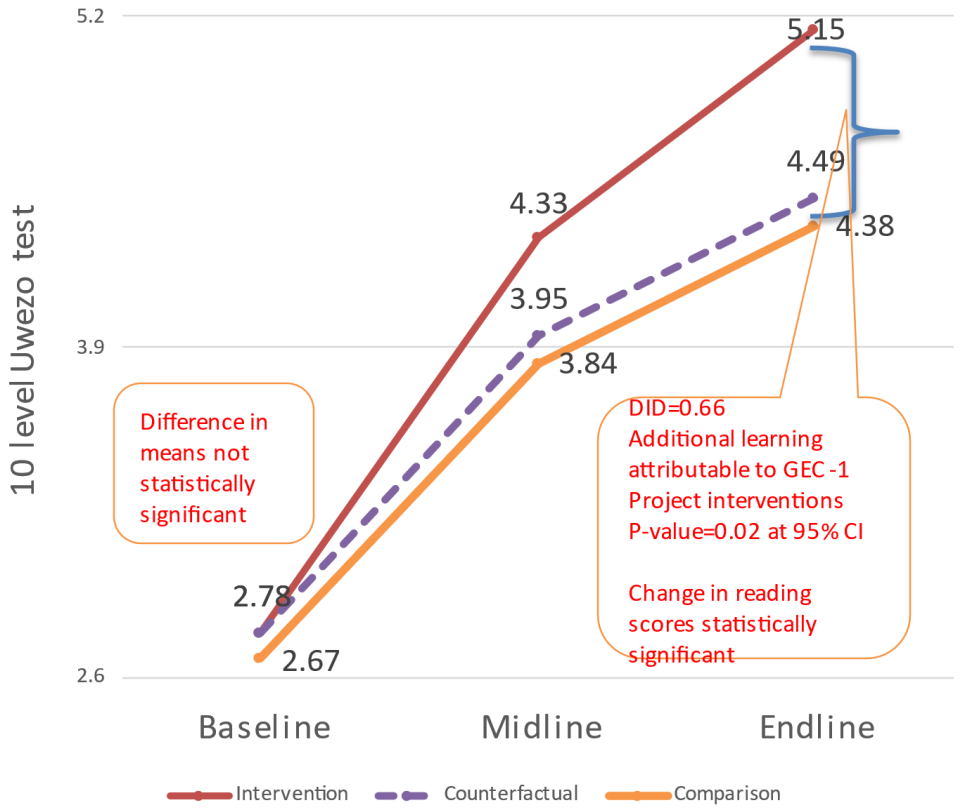
GEC-1 Summary

KENYA:

Statistically significant impact on the most marginalised girls

Started April 2013 and ended May 2017
Main achievements

- > 89,000 girls reached
- > 9000 girls enrolled
- > 6000 girls supported to remain in school
- > 320 teen mothers re-enrolled
- 2715 teachers trained
- Improved learning outcomes



Girls' Education Challenge

Education Development Trust

POLICY MAKER TAKEAWAYS

Education Development Trust

Empowering key stakeholders through technology

What improves access, equity and inclusion?

- Community-school link > ‘push’ factor
- Education quality in school > ‘pull’ factor

Where can you find appropriate technology to support both?

- Low cost
- Essential is it is driven by/supports an overall reform model
- Focus = people who will drive the change and their needs
- Technology as an enhancer and connector, not an end in itself

Education Development Trust

Meet Rose the electrician