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UNESCO GLOBAL EDUCATION MONITORING REPORT CONSULTATION MEETING OF AFRICAN OFFICIALS: 27 OCTOBER 2021

EDUCATION TECHNOLOGY: KNOWLEDGE GENERATION & CREATION FOR SKILLS TRANSFORMATION

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GOLA Report

Contents

Section 1. Format and Participants

1.1 Introduction 04

1.2 Executive Summary 05

1.3 Format of Video Conference and this Report 07

1.4 Participants 08

Section 2. Discussion

2.1 Opening Statements 13

2.2 ICT for Education Implementation in Africa 16

2.3 Education Technology Policy Considerations 19

2.4 Digital Skills and ICT Integration in Teaching 21

2.5 Technology for Content and Curricula 23

2.6 Being Vigilant to the Potential Harms of Technology 25

2.7 Closing Statements 26

Section 3. Appendices

3.1 Appendix A: GEM Report Concept Note, Manos Antoninis 29

3.2 Appendix B: Education Technology for Content, Scott Smith 40

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 Odilo, is part of the ongoing consultation for 2023 Global Education Monitoring Report that will be on the theme of technology and education. This first consultation is specifically around knowledge and skills and the experiences of African officials on both the benefits and potential harm of technology in education when generating knowledge, providing content, and developing digital and basic skills amongst learners. 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 the role of technology in advancing knowledge creation and skills development 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 good time to express their own thoughts and to discuss recommendations in education that contribute to remedial policies and actions.

The purpose of this first 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:

Curricula: enabling the use of technology when reforming curricula and designing learning materials

Policy: recommendations for producing comprehensive online and ICT for education policy frameworks

Knowledge: determining the best online resources that meet national standards and age appropriateness

Content: determine specifications for online resources that meet national standards and are age appropriate

Basic Skills: transforming pedagogy to engage students and improve learning

Digital Skills: ensuring that education systems provide the new skills that technology demands

Technology for Learning: using technology for learner-centred education and the implications around safeguarding learners online, data privacy, screen time, well-being. Are today's digital natives digitally literate?

As recognised in the Incheon Declaration, the achievement of SDG 4 is dependent on opportunities and challenges posed by technology, a relationship that was strengthened by the onset of the Covid pandemic. Technology appears in six out of the ten targets in the fourth Sustainable Development goal on education. These references recognize that technology affects education through five distinct channels, as input, means of delivery, skill, tool for planning, and providing a social and cultural context.

There are often bitter divisions in how the role of technology is viewed, however. These divisions are widening as the technology is evolving at breakneck speed. The 2023 GEM Report on technology and education will explore these debates, examining education challenges to which appropriate use of technology can offer solutions to improving access, equity, and inclusion; quality; technology

advancement; and system management.

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.

Few innovations have generated such excitement and idealism as information and communication technology in education. We know that technology's problems and successes are rarely due to technology alone. Technology is no substitute for poor teaching or outdated curricula that emphasise lower order thinking skills. However, technology can be an important component of educational improvement when it is part of a carefully designed program of system reform. In this consultation we focus on issues related to access, to content and quality, exploring how education systems can use technology to improve the acquisition of basic skills. 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 are transforming pedagogy to engage students and improve learning; how they are ensuring that education systems provide the new skills that technology demands; and how they are enabling the use of technology when reforming curricula and designing learning materials. The effects of the Covid-19 pandemic on the role of technology in education received special attention.

1.2 Executive Summary

With 140 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 observation into the implementation of ICT for education in Africa, the necessary policy considerations, ICT integration, teaching and skills, content and curricula and taken note of the potential harms of technology in education, as well as its benefits.

A short summary cannot do justice to all that has been shared, but we can precis the key questions of education technology, policy considerations, important guiding principles and both the observed advantages and disadvantages seen in ICT for education – all within the African context

<u>Questions</u>
Why should technology be part of today's classroom and learning? How can education systems provide the new skills that technology demands? How can we fight harmful misinformation? How can technology be used to transform pedagogy to improve learning? How do we better motivate and engage students? How do we determine overall policy for ICT for education? How can we respond to technology evolving at pace much faster than governance and policy? How do we accelerate access?

<u>Considerations</u>
Deployment of national ICT for education projects are a huge undertaking that can only be successfully achieved with a whole government approach. Transitioning to online learning at scale is difficult and highly complex, so the top-down approach is not enough – only multi-stakeholder, polycentric approaches will succeed. Collaboration and partnerships between various stakeholders are essential. Technological advances outpace policy making. Upskilling and reskilling of teachers is of the utmost importance. Online solutions need to be replicated offline for areas of low connectivity or low data access. Students with disabilities should be able to make the most of technology initiatives. In Africa the biggest challenges are the ICT infrastructure and the associated high costs of data, power, and devices. Improvement in the quality of instruction is a prerequisite to implementing new digital education programs. Monitoring and evaluation need to be factored into the budgeting of ICT for education projects. Consider the sustainability of hardware and replacement costs. Consider change management and the influencing factors of ICT literacy, ICT infrastructure and access, and school culture. It all takes time – decades of teaching methods cannot change overnight.

<u>Principles</u>
Teachers remain at the centre and must be equipped with the necessary tools and be capacitated to develop digital skills and competencies. Any identified negative impact of educational technology should be seen as a challenge that informs and shapes policy making. Appropriate governance and regulation should underpin online policies to protect learners from risks. Inclusive education policy must be designed

to make sure special needs students are not left out of any digital transformation. Deployment of ICTs need to be supported with evidence-based research and data collection, while also embedding monitoring into the system. ICT for education needs the right infrastructure with affordable technology, continuous capacity building for users and digital access across all educational levels. Avoid a one-size fits all approach given the huge diversity in education systems. Update compliance frameworks for teacher professional development to account for digital skills. Develop a framework for digital skills for educators. Upskilling of master trainers is an urgent investment to deliver effective virtual training programs. Pedagogical solutions must be the basis of policy guidelines and then technology can follow.

<u>Potential Benefits</u>

Digital and online education can bring about learning anywhere, everywhere and at any time. Technology is enabling access to content and knowledge. Open educational resources offer scalability, expanded access to learning and the augmentation of educational materials. ICTs can help improve the collection of data, better measure outcomes and inform policy making. Education technology can produce measurable results in reading, writing and numeracy in a relatively short period of time. Intelligent platforms can include teacher professional development, help improve the quality of learning and encourage collaboration. Interactive technology can motivate students and make learning more attractive. Learner-centred educational technologies have the potential to increase student ability. Adaptive individualised instruction can help with recovery form loss of learning. Education management information systems can improve the administration of both local schools and national systems. Technology can drive inclusivity such as interactive whiteboards helping with special needs impairments. Technology has helped vastly increase collaboration. During the pandemic communications tools, such as social media, proved invaluable in reaching out to learners and parents.

<u>Potential Harms & Concerns</u>

Screentime may affect the mental and physical development of children. Screentime also impacts the effectiveness of e-learning. Devices may disturb cohesiveness in the classroom. Cyber-safety, cyberbullying, misuses of materials or the accessing of wrong materials. Cyber abuse of girls and gender-based violence promulgated online. The dangers of 'digital fatigue'. Large-scale ICT for education projects are not impacting in the way they were originally envisaged. Harmful online content presents a risky environment for education. Overuse of gamification may distract from the true educational goals. Social media is a great communication tool but in young people peer pressure can cause low self-esteem and mental ill-health. Current ICT for education policies seem right in their objectives but falling short in the results. There is a gap in the integration of ICTs and the quality of evaluating their impact. Lots of money has been spent without a true picture of how this has delivered quality education. Data privacy and data sovereignty are national concerns. Pre-packaged technology may not account for local policy. The socialisation of online learning needs to be considered to avoid introversion and aggressiveness.

1.3 Format of Video Conference and this Report

In section 1.4 we list the one hundred and thirty six (136) 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 Claudiana Cole, Minister of Basic and Secondary Education, The Gambia; Hon Jerome Ochieng, Principal Secretary of ICT, Innovation and Youth, Kenya; Catherine Appiah-Pinkrah, Director, General Administration, Ministry of Education, Ghana; and Manos Antoninis, Director, UNESCO GEM Report. Closing statements were made by Scott Smith, Vice President, Government, Odilo and Haroon Mahomed, Chief Director of Curriculum Management and Teacher Development, Western Cape Education Department, South Africa. 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 Claudiana Cole, Minister of Basic and Secondary Education, The Gambia; Hon Jerome Ochieng, Principal Secretary of ICT, Innovation and Youth, Kenya; Catherine Appiah-Pinkrah, Director, General Administration, Ministry of Education, Ghana; and Manos Antoninis, Director, UNESCO GEM Report.

Part B: Seventeen 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 statements were provided by Scott Smith, Vice President, Government, Odilo and Haroon Mahomed, Chief Director of Curriculum Management and Teacher Development, Western Cape Education Department, South Africa.

The total time of the video meeting was 120 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.

I. **ICT for Education Implementation in Africa**

II. **Education Technology Policy Considerations**

III. **Digital Skills and ICT Integration in Teaching**

IV. **Technology for Content and Curricula**

V. **Being Vigilant to the Potential Harms of Technology**

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:

AUSTRALIA: Paul Royston, Regional Manager ANZ, Odilo. *Moderator*

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

BOTSWANA: Prince Marokane, Principal Education Officer, ICT and e-content Development, Ministry of Basic Education

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

BOTSWANA: Monicah Minki Lekgabe, Principal Education Officer, French and e-content Development, Ministry of Basic Education

BOTSWANA: Lentikile Matswagothata, Coordinator Education and Training Sector Strategic Plan, Ministry of Basic Education

BOTSWANA: Lechani Rammoni, Manager of Product Development and Standards, Botswana Examinations Council

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

ESWATINI: Musa Hlophe, Director, National Curriculum Centre, Ministry of Education

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: Hon Claudiana Cole, Minister of Basic and Secondary Education. *Opening Speaker*.

GAMBIA: Louis Moses Mendy, Permanent Secretary, Ministry of 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: Ousainou Drammeh, Chairperson Education Advisory Council for Basic and Secondary Education

GHANA: Catherine Appiah-Pinkrah, Director, General Administration, Ministry of Education. *Opening Speaker*.

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

GHANA: Barbara Nkrumah Arthur, Minister's Secretariat, Ministry of Education

GHANA: Afua Ansre, Advisor; Gender, Inclusion and Safeguarding, 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: Aminu Sulemana, Monitoring and Evaluation Officer, Ministry of Education

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

GHANA: Ussif William Ayinga, Performance & Monitoring Advisor, Ministry of Education - National Education Reforms Secretariat

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

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

GHANA: Lawrence Sarpong, Director for Professional Development of Teachers, National Teaching Council

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

GHANA: Moses G Y Gemeh, Education Officer, National Commission for UNESCO

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

KENYA: Hon Jerome Ochieng, Principal Secretary, Ministry of ICT, Innovation and Youth. *Opening Speaker*

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

KENYA: Sally Washiko, Personal Assistant to Principal Secretary, Ministry of ICT, Innovation and Youth

KENYA: Dr Elyas Abdi, Director General Early Learning & Basic Education, 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: Jane Mwangi, Chief Executive Officer, Kenya Association of International Schools

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

KENYA: Felix Rop, Consultant for ICTs in Education, UNESCO Regional office for Eastern Africa

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: Noriah Nchingula, Chief Education Officer, Open, Distance and e-learning, Ministry of Education

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

MALAWI: Nasreen Khonat, Shining Stars School Director, Malawi Private Schools

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

NAMIBIA: Dr Elizabeth Ndjendja, Deputy Director for Examinations, Certification, Correspondence and Enquiries, Ministry of Education, Arts & Culture

NAMIBIA: Johan van Wyk, Deputy Director for ICT, Ministry of Education, Arts & Culture

NAMIBIA: Rauna Ndinoshiho, Deputy Director National Examinations and Assessment, Ministry of Education, Arts & Culture

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

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

NAMIBIA: Trisha Mawela, Media Officer, National Institute For Education Development (NIED), 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: Gbenga Oderemi, Deputy Director ICT for 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, 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: Martin Odebowale, ICT Expert, Office of the Special Adviser on Education, Office of the Special Adviser on Education

NIGERIA, OGUN STATE: Segun Sogeke, Assistant to the Special Adviser on Education, Office of the Special Adviser on Education

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

RWANDA: Eng Pascal Gatabazi, Chief Technical Advisor to the Minister, Ministry of Education

SEYCHELLES: Cindhuja Kamalraj, Principal Research Officer Technology, National Institute for Science, Technology & Innovation

SEYCHELLES: Manfred Laporte, Principal Research Officer, Knowledge Management and Education, National Institute for Science, Technology & Innovation

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

SIERRA LEONE: Adama Momoh, Director of Planning, Ministry of Basic and Senior Secondary Education

SIERRA LEONE: Victor Abu Sesay, Director of Technology, and Innovation, Ministry of Tertiary and Higher Education

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

SOUTH AFRICA: Paddy Padayachee, Deputy Director General for Teachers, Education Human Resources and Institutional Development, Ministry of Basic Education

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

SOUTH AFRICA: Dr Morgan Pillay, Chief Director for Teacher Development, Ministry of Basic Education

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

SOUTH AFRICA: Isaac Chafera, Regional Manager, Africa, Odilo. *Moderator*

SOUTH AFRICA: Bronwyn Boffelli, Key Accounts Manager, South Africa, Odilo. *Moderator*

SOUTH AFRICA: Nobelungu Letsoela, Regional Academic Sales Manager- Africa, Odilo. *Moderator*

SOUTH AFRICA, GAUTENG PROVINCE: Alison Bengtson, Deputy Director, Head of Curriculum, Department of Education

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

SOUTH AFRICA, GAUTENG PROVINCE: Ntombizanele Ramothwa, Deputy Chief Educational Specialist, Department of Education

SOUTH AFRICA, GAUTENG PROVINCE: Thulani Mthembu, Deputy Chief Educational Specialist, Department of Education

SOUTH AFRICA, MPUMALANGA PROVINCE: Deon van Vuuren, Chief Education Specialist for School Libraries and Information Systems & Computers in Education, Department of Education

SOUTH AFRICA, MPUMALANGA PROVINCE: Elijah Nkosi, Director of Mathematics, Science & Technology, 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. Closing speaker

SOUTH AFRICA, WESTERN CAPE PROVINCE: Magdelena Benn, Senior Education Specialist, Department of Education

SOUTH AFRICA, WESTERN CAPE PROVINCE: Liesl Robinson, SES Coordinator - Inclusive Education., Department of Education

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

SOUTH SUDAN: Viola Muhangi Kuhaisa, Education in Emergency Specialist, UNESCO

SPAIN: Scott Smith, Vice President Global Government Sales, Odilo. Closing speaker and *Moderator*

SPAIN: Ana Navarrina, Global Communications Manager, Odilo. *Moderator*

SPAIN: Maite San Segundo, Field Marketing Manager, Odilo. *Moderator*

SPAIN: Marianna Deffendini, Field Marketing Manager, Odilo. *Moderator*

SPAIN: Eduardo Yague Guillén, Head of Global School Business, Odilo. *Moderator*

SPAIN: Marina Calderon, Head of Social Media, Odilo

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

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

TURKEY: Can Mindek, Regional Manager for Turkey and Middle East, Odilo

UGANDA: Dr Grace K Baguma, Director, National Curriculum Development Centre, Ministry of Education and Sports

UGANDA: Edward Ssebukyu, Commissioner for Private Education, Ministry of Education and Sports

UGANDA: Angela Kyagaba, Senior Curriculum Specialist, National Curriculum Development Centre, Ministry of Education and Sports

UGANDA: Abubaker Bbuye, Emerging Education Technology Expert and Senior Education Officer, Ministry of Education and Sports

UNITED KINGDOM: Jay Ladva, Vice President, Enterprise Sales, Odilo. *Moderator*

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 - ICT Policy & Regulations, SMART Zambia, Office of the President

ZAMBIA: George Chileya, Assistant Director for Research and Innovation, Directorate of National Science Centre, Ministry of General Education

ZAMBIA: Patrick Mwiya, Senior ICT Officer for Training and Curriculum Support, Directorate of National Science Centre, Ministry of General Education

ZAMBIA: Alick Siankumo, EMIS Advisor, World Bank Project, Ministry of General Education

ZAMBIA: Molly Mwale, Senior Programme Analyst, Ministry of General Education

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

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

ZIMBABWE: Absalom Chinoona, Director ICT, eLearning & Technical Services, Ministry of Primary & Secondary Education

ZIMBABWE: Gabriel Mhumha, Provincial Education Director, Ministry of Primary & Secondary Education

DISCUSSIONS

SECTION 2. Discussion

2.1 Opening Statements

The opening statements were provided by Hon Jerome Ochieng, Principal Secretary of ICT, Innovation and Youth, Kenya; Hon Claudiana Cole, Minister of Basic and Secondary Education, The Gambia; Catherine Appiah-Pinkrah, Director, General Administration, Ministry of Education, Ghana; and Manos Antoninis, Director, UNESCO GEM Report.

Hon Jerome Ochieng

The Principal Secretary opened by referencing how this discussion and the Global Education Monitoring Report consultation has been made even more relevant due to the ongoing Covid-19 pandemic and the pace at which technology is evolving. Kenya, like other countries could not have anticipated the wide ranging social and economic impact of the virus. However, existing investments in Kenya's digital economy provided an environment that has helped mitigate some of the impacts of the pandemic. Key among them was the Kenya's Digital Literacy Programme that, popularly referred to as DLP, was born out of the government's vision to equip pupils, learners and teachers with the relevant skills needed in today's digital world. The objective of the program was to provide devices, build capacity for teachers and implementers and provide broadband connectivity together with digital content.

The government implemented a multi-agency approach for the implementation of the DLP, whereby they brought on board key stakeholders, including the Ministry of Education, the Ministry of ICT in charge of the infrastructure and devices, and the Kenya Institute of Curriculum Development (KICD) in charge of curriculum. Furthermore, this included the Ministry of Energy to ensure power to the most remote areas, with solar power installed for off-grid locations. The entire spectrum of "whole government" was involved.

The DLP program has a framework for identification of approved educational content material under the stewardship of the Kenya Institute of Curriculum Development. In this context, Kenya has made progress towards making education accessible through digital channels prior to the pandemic, though, there is still a lot to be done. Following the onset of the pandemic, they realised that there is also the need for psycho-social support for teachers, learners, and school communities. This has been heightened due to the substantial uptake in the use of technology for education.

So, as we pursue digitalisation and the deployment of ICT in the education system, we are cognisant of the fact that digitalisation also has its inherent challenges that require appropriate governance, policy and regulatory interventions that need to be put in place to mitigate against these challenges. Transitioning to online learning at scale is a difficult and highly complex undertaking, as technological advances often outpace the ability of policymakers to keep up with the appropriate regulatory mechanisms to safeguard students and teachers alike, while inequitable access, and inequality widens the digital device. These are some of the challenges that we really need to always be cognisant of.

Furthermore, the development of a robust, reliable, and secure infrastructure, which forms the foundation upon which digital learning takes place, is a highly costly and time consuming undertaking that requires collaboration and partnership between the various stakeholders in order to succeed. And while infrastructure is certainly important, upskilling and reskilling of teachers in the new learning environment is of utmost importance, offering high quality curriculum, relevant digital learning content and assessment tools. Monitoring and Evaluation are some of the areas that we need to emphasise on. Cybersecurity, and protection of children online remains a key concern to us as we pursue digital transformation in the education sector.

Critically, it must be stated that all efforts to transform education through technology must address the profound equality concerns brought about by digitization, as well as environmental conservation concerns, and being able to raise awareness on social issues, such as screentime

that may adversely affect the mental and physical development of children. As policymakers and stakeholders, we must also consider the particular and individual needs of students with disabilities and other special education needs. The plight of those children in marginalised and low income areas must also be taken into consideration.

Hon Claudiana Cole

In May of 2021, the Ministry of Basic and Secondary Education launched *iLearnGambia* – a platform in which students could continue to learn and educate themselves while out of the classrooms. The existing mindset has been that learning can only take place within the four walls of the classroom, but with Covid-19, everyone needed to understand that we can learn anywhere, everywhere and at any time. *iLearnGambia* is a platform which students can use both offline and online, to empower those learners to self-study.

When the pandemic struck, schools in Gambia were closed for eight months. Within a week they introduced several initiatives to allow remote learning by students. Television and radio were used to provide lessons – a service already outlined within the education policy along with the use of ICTs in education. Covid-19 accelerated the policy intent to use digital technologies for learning. The mobilisation included the curriculum directorate and a communications unit who worked together to provide distance education.

After these actions of the Ministry of Basic and Secondary Education, it was then possible to continue with the basic education examinations that conclude grade nine and the senior secondary regional examinations. The results in both were very encouraging. The monitoring of students and their response to following lessons, convinced the ministry that the distance learning actions were having some impact. Further interventions were required for those learners in rural areas. For example, in the Greater Banjul area, television was accessible to many students, but in the rural areas, where electricity is a challenge, the students were not able to have access to television, and so the ministry provided radio sets with the help of the Gambia Teachers Union.

On the re-opening of schools, they reduced class size from 40 children to about 25, which created its own problems. Some of the students were able only able to go to school on certain days of the week, and others had to go on other days of the week. They even had to extend the school week to include Saturday. With this concern that students were missing out on learning, they brought in the iLearnGambia initiative. It has been live since May and students are now utilising the platform. Of course, access remains an important concern given that not all parts of the country have internet access. So, they have managed to put iLearnGambia offline by providing students with SD cards with around 5,000 pre-loaded lessons. These include specifically designed lessons that complement what they learn in the classroom.

The Minister has also responded to concerns around students with disabilities being able to make the most of these initiatives, by making the necessary arrangements to ensure lessons are produced in Braille, transcribed, and given with sign language. Equity, access, and inclusive education are central to the policy framework of the Ministry of Basic and Secondary Education and making sure all schools have access to the internet is a priority.

Catherine Appiah-Pinkrah

Director Appiah-Prinkrah first pointed to some of the disturbing negative impacts of technology, despite its enormous importance. A particular example of this is cohesion in the classroom and how excessive use of smartphones and tablets can disturb the teacher-student cohesiveness. But any such negative impact of technology should be seen as a challenge in which to shape policy and decision making around the use of technology in education. So in Ghana they are making sure that policy revisions are made to suit the technological needs of our world and the three system-wide conditions that need to be met for any technology in education to reach its full potential (§ 1.1).

Regarding the need to ensure that all learners have access to digital educational resources is difficult, particularly in the developing world where the internet does not reach every part of the country. The leadership of the Ghanaian Ministry of Education has highly recommended a hybrid approach to support the traditional education system which provides both online and offline mediated learning. The *iBox*, or '*intelligent box*' is the offline solution and the *icampusghana* is the online platform for students. The 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.

The offline solution has been deployed in areas of low levels of connectivity or low data access and with over 250 iBoxes installed in various schools, they have had a lot of success in ensuring the continuity of education. In the Ministry's quest to re-imagine education through the use of ICTs, it is important

to make sure that students and teachers get the necessary training in the use of digital projects they are rolling out. This includes deploying a comprehensive learning management system to provide teaching and learning materials. Although connectivity has been a major challenge, Ghana has now deployed free WiFi to all schools, which in turn will make it easier to upload content onto the installed iBoxes and allow continued offline learning. Not every corner of the country has been covered yet, but substantially WiFi connectivity has been deployed nationwide.

Furthermore, the government has reformed the curriculum to better reflect 21st century needs in this digital world. This has been aligned with instituting the appropriate governance and regulations in Ghana to protect learners from risks online. Policies and reforms have been designed with the support of UNICEF and UNESCO to make sure that the use of digital technologies in education is safe for all stakeholders. Parliament is producing the Ghanaian safe school policy and the government has finished developing a digital literacy program which will also include use of TV and radio programs to maximise access. The inclusive education policy is designed to make sure special needs schools are not left out of the ICT for education network and actions are being taken to link the Braille system to the use of online learning tools.

The recent deployment of ICTs includes a one teacher, one laptop program particularly in secondary schools and the ministry signed an MOU with Hewlett Packard to run a one year online training program for teachers, which as well as covering technical aspects, also provides guidance on the ethics and etiquette of online learning. Such deployments need to be accompanied by evidence-based research and data collection and analysis – the ministry of education currently has monitoring teams across the country to ascertain how the digital technologies are impacting learning outcomes.

As these policies and programs continue to be rolled out in Ghana, they remain cognisant of the ongoing challenges and potential harmful effects of poorly governed and ill-managed technologies in education. For example, encouraging communication and promoting collaboration are important ingredients for student and teacher interactions. There is also a need to share and compare technology tools and policies so that we can learn from best practice. And a need to encourage tech-students to participate in the process through designing interactive content that will enrich their courses. As we enhance our vision and planning of the ICT infrastructure for education, we must not lose sight of the fact that teachers are at the centre and must be equipped with all the necessary tools and have the capacity to develop the requisite new digital skills and competencies. Learning resources must be available to these teachers through a robust and inclusive education management information system. All these criteria form part of the ongoing reforms and revisions such that Ghana responds to the ever-increasing role of technology in education.

Manos Antoninis

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

The editorially independent Global Education Monitoring Report team has a mandate to monitor education in the context of the Sustainable Development Goals (SDGs) and the implementation of national strategies to help partners maintain their commitment to achieve SDG 4, education. Hence, every GEM Report has a theme that reflects those SDG commitments. December sees the launch of the 2021/22 report on non-state actors in education and the theme of the 2023 report is dedicated to technology in education.

One of the promises of technology is to accelerate the achievement of SDG 4 and the lens in which we look through this has been intensified by the challenges brought about by Covid-19 and the additional burdens it has placed upon education systems. Yet there remain divisions regarding the role of technology in education. A divide between those who strongly support it, believing that any disruptive technology will encounter opposition and those who believe that technology has not really made a strong difference in education over the years.

So why should technology be part of today's classroom? There are those who see technology as an opportunity to democratise classrooms, and yet those who see it as narrowing our pathways. Some believe education technology is the great equaliser providing content and knowledge to everyone, and others who think the most disadvantaged will be excluded. Some think that children should be exposed from as young an age as possible, yet plenty of people raise concerns about early exposure.

From the previous opening statements, we have already heard of how technology is evolving at breakneck speed and that makes the issues of research challenging on what sort of information we need, especially ministers of education who need to be able to judge which technology and pathway works best. One of the key topics in this consultation is access to content and how education technology

is enabling access to as much knowledge as possible in attractive and cheap formats. Yet sometimes we are not seeing the uptake of the open education movement as much as might be expected. The next important issue is that of quality and the GEM report consultation splits this into basic skills and digital skills. Regarding the former, the question is whether pedagogy can be transformed with the support of technology to engage students in the foundational literacy and numeracy outcomes, especially those more disadvantaged. This has also been the focus of the Africa specific "Spotlight" series of reports on foundational learning in Africa.

The second part of quality is digital skills. How can education systems provide the new skills that technology demands, including data and information literacy? How can we fight misinformation and strengthen collaboration in creating digital content, that accounts for the safety of learners while developing their problem solving skills? Education technology can help improve our collection of data and measurement of outcomes to better manage the education ecosystem, especially with respect to assessment. It is this information and data which can then be used to better inform policy making.

So, there are three minimum conditions that are required for technology to support education: access to technology and it's deployment; governance and regulation; and teacher preparation. It is important for us all to hear how countries are overcoming these challenges with better policies, better financing mechanisms and better information in order to choose the best technology pathway. We need to ask how we can protect learners from the risks of technology and what legislation is required. Teachers need to be prepared to use and to teach the use of technology in the classroom.

Regarding basic and digital skills, it is important that we ask for specific evidenced-based examples of how technology can be used to transform pedagogy to engage students and improve learning. How can technology be used for more learner-centred education. How can we ensure that education systems help learners acquire the new digital skills that technology demands? How do manage privacy and student well-being? What examples do we have of the use of technology in reforming curricula and designing better learning materials? How can governments determine the specifications for online resources that meet national standards and are age appropriate for their learners?

Finally, in consideration of all these aspects, how do we determine overall policy for ICT for education? This includes the need to develop comprehensive

online education policy frameworks. This global consultation is a critical part of disseminating information and providing essential research that can better underpin education policy in the use of new technologies. The experiences of those working on-the-ground in education in sub-Saharan Africa are an important part in understanding the challenges being faced by officials and educators.

2.2 ICT for Education Implementation in Africa

The Covid pandemic has been seen as an accelerator of digital transformation of education in many African countries. Governments are speeding up the process of expediting digitalisation. Reform of pedagogical practices has become part of the post-Covid discussion, especially in encouraging more learner-centred education and using adaptive technology that can support students in learning at their own pace and developing collaborative skills that reflect the needs of the knowledge-based economy.

Western Cape in South Africa have enabled each of their districts to have digital streaming equipment and by identifying the best teachers can beam lessons to multiple locations. Yet there remains a large number of schools who do not have the digital access and it is necessary to distribute printed course materials. The Department of Education is finding that the digital systems are running well and proving more useful in providing feedback on learner performance. The essential ingredient is, of course, the teacher and any technology that does not support the teacher is more likely to fail. A skilful teacher can use ICTs for education to put together a useful package of materials taken from online resources. The concern is cyber safety. The department of education has put in place a program to mitigate against cyberbullying and misuse of materials or accessing of the wrong materials by

learners. They make a point of limiting the hours spent on digital platforms to reduce “digital fatigue”.

As well as making substantial investment in ICT for education that pre-dates Covid, Kenya has continually invested in monitoring and evaluation and re-engineering parts of the education ecosystem to see which technology has the most productive impact, especially on learning outcomes. Overall, it is not impacting in the way they originally envisaged and the key thing here is the need to increase teacher capacity alongside the investment in ICTs. So Kenya has now created a cohort of trainers that they call ICT champions, across the counties to support teachers. To effectively integrate ICT in education we require for pillars in place: relevant policies consistent with other government policy; the right infrastructure with affordable technology; continuous capacity building for the users; and digital content across educational levels.

Tanzania has taken part in the Global Learning XPrize project, with the aim of promoting early learning through ICTs. This has benefited children that were out of school and children who have never attended school before, for various reasons. A total of 2,500 children were given tablets with educational technology pre-installed. The aim of the program was to measure the outcomes of the kids using tablets with the minimal amount of parental or teacher supervision over a 15 month period.

The XPrize field test in Tanzania was chosen because of social-political factors such as political stability, a common language that was widely spoken amongst remote populations, and equal access to education and learning for both girls and boys. The field test spanned across 170 villages with over 2,700 out of school children aged 7-11 participating and 300 Tanzanians contributing to the project. Before the field test, 74% of the participating children were reported as having never attended school, 80% reported never having been read to at home, and over 90% of participating children were unable to read a single word in Swahili, the national language of Tanzania. At the beginning, less than 10% of the children could read a single world in Swahili. After the field test, 45% of these children could read a word, with 30% reading full sentences. In terms of numeracy, 23% of the children were able to correctly answer at least one single-digit addition or subtraction problem. After 15 months with tablets, that number jumped to 66%. For writing, 26% of children were able to correctly copy a simple word they were shown using a pencil and a piece of paper. After 15 months, 67% of children with tablets were able to do this correctly. In summary, the field test showed that education technology can produce measurable results in learning in a relatively short time.

In South Africa, with the onset of Covid-19, there have been a wide range of technology interventions – from high-tech (devices, platforms) to low-tech (TV, radio) – yet the impact of these technologies has fallen somewhat short of expectations. Some initial assessments have seen disappointing results with early data from online platforms suggesting a drop in coursework. Technology is a tool, a vehicle to deliver educational resources but is not a pedagogical intervention and so it is critical to make sure we assess the effectiveness of using new technologies in education.

Somalia’s education system is undergoing a period of reconstruction after a long period of instability, and they are now working hard to accommodate technology in education. Digital literacy and the use of ICTs in subjects has now been included in the curriculum framework and this has now been expanded to teacher training. UNESCO are now supporting the country with consultation on an education sector plan and Somalia is keen to learn more of how technology can be leveraged and how the existing wealth of international knowledge can raise the quality of education in the country.

The use of technology in education should be considered in the local African context. Broadband connectivity remains costly and so currently there is a need to adapt the use of technology to circumstances on the ground. In Africa there is a greater tendency to look at how technology can solve day-to-day issues, rather than making money out of it. So the technology in education should have a purpose based on the country or community it is applied within.

In Ghana, as they develop their digital literacy program, the ministry of education has been putting a lot of emphasis on the necessary upskilling of teachers in the use of digital technologies. With revisions to the basic education curriculum, including more digital content, then the teachers need to apply that in the classroom. Furthermore, this must be supported with a learning management system such that teachers can access content, develop lessons and that their work is integrated into the school level data management. An important question for officials is how they use all this data so it can be properly disseminated to inform policy making.

Reference was made to the Marrakesh Treaty which makes the production and international transfer of specially-adapted books for people with blindness or visual impairments easier. It does this by establishing

a set of limitations and exceptions to traditional copyright law. With so many countries working hard to digitise content and provide the means of access, it is critical that the investment in technology is inclusive of those learners with disabilities.

In Botswana they are now working on their village connectivity program as part of the initiative called SmartBots, which is the country's new proposition to drive transformation across the economy, government, and society through several key strategic initiatives and projects. Building teacher capacity is necessary to make this program effective, with ICT integration training along with an ongoing schedule of training master trainers to cascade the knowledge across schools. The procurement of devices is now underway for students at senior secondary schools with the aim of having one-to-one devices for teachers and learners by March 2023.

A nationwide survey on the use of ICTs in Nigeria sampled about 5,000 end users to obtain their feedback on the biggest challenges. The top three were cost of data, cost of power and cost of devices. If the central government is not going to make provisions for purchasing devices then communities and businesses need to come up with creative funding options.

Most of Ghana's curriculum has now been digitised. The implementation of a standards-based curriculum over the last couple of years has meant an ICT component being incorporated into the various parts of curriculum design. From a policy point of view they have reviewed the use of devices in schools such that students can now bring their own device or use in the classroom. By adopting the Edmodo platform, teachers can create lesson online with the ability to interact with learners. Policy has also included digitising all libraries in Ghana and making them interconnected. Until now, the policy guidelines have not allowed students bringing their own devices into the classroom.

ICT for education is still relatively young in Liberia. The World Bank has helped them develop their first ICT curriculum which now needs to enter a full roll-out and implementation phase. Connectivity remains a fundamental challenge to having a fully integrated online learning platform. The technology has not been in place to create a fully operational e-learning platform, yet development partners such as UNICEF helped with educational radio programs and designing lessons for students. To accelerate the recovery of learning it has meant condensing parts of the curriculum and now getting ICTs into schools is a central policy of the ministry of education.

Namibia conducted a survey when the Covid outbreak started, to find out how many teachers had access to devices and the internet. 67% of teachers had either laptops or smartphones and of the 1,800 schools, 600 were connected to the internet. The biggest problem was bandwidth, but the ICT ministry installed more school WiFi hotspots, and they were pleased to see an improvement in communications between teachers, parents, and students. Technology has certainly been of great benefit in helping communication in the education system yet use of technology in learning has opened socioeconomic divides and without the correct approach there is a real danger of widening the digital gap.

In Cameroon, the ministry of basic education has noticed that screen time impacts the effectiveness of e-learning. To increase concentration they may limit online subject learning into 30 minute segments over an allocated three hours during the school week. The educational content is mostly interactive, with every lesson for every topic being assessed every day. For every educational resource that a teacher produces, it must be monitored and supervised as they cannot use just any online content that is not aligned with learning policy.

Any development of education in technology requires an enabling environment. We have heard from countries like Sierra Leone who do not have the level of infrastructure that we see in countries such as South Africa and Rwanda. Several participants in the meeting referred to the many different circumstances and socioeconomic environments across the African continent and certainly with such diversity there cannot be a "one size fits all" approach to ICT for education. Somalia has multiple infrastructure challenges after many years of civil conflict as does South Sudan where schools are ill equipped for the proper teaching of the sciences and technology-based subjects. A whole government approach with the support of international partners is required to develop a national science, technology, and innovation (STI) policy. Then an enormous effort is needed to increase the quality of teaching through new investments in training that includes digital competencies, aligned with UNESCO's ICT Competency Framework for Teachers (ICT-CFT).

The deployment of education learning managements systems in Africa was fairly limited prior to the pandemic but since April 2020 we have seen more countries installing management information systems to better collect and evaluate data from schools and districts. Open source options for e-learning platforms and education management systems are available but some participants commented on limitations, such as being mainly

teacher-centred and with few options to self-explore content.

Intelligent platforms that can bring real benefit to educators and ministry officials should fulfil several services that include professional development indicators for teachers; improve the quality of learning through innovative assignments; encourage collaboration and teacher discussion forums; provide real-time monitoring; and guide teachers and school principals by tracking overall learner performance. Other examples of improving education management with technology may include the likes of predictive analytics and evaluation of curriculum attainment in the school, as well as overall subject performance monitoring as per the standards set by inspectors. In Zambia, they have multiple directorates within the ministry of education responsible for many of the aforementioned elements and they hope that a robust and well-designed learning management platform can effectively act as a one-stop-shop for education data and information management.

The pace of change in technology is not just faster than policy reform but also changes to curricula and assessment in education. So the education system should be alert to which technologies are applicable to education and are safe across the age spectrum. This is where there is a policy gap in ICT for education. An example of this in Ghana, has been in the deployment of the iBoxes in schools, which contain a wealth of digital content. Hindering the rate of usage of these iBoxes has been a lack of understanding by teachers and a lack of policy framework to guide the use of such new devices in schools. So policy makers need to develop frameworks that truly address teacher preparation, classroom practices and school capacity – along with the appropriate use of technology in the classroom.

2.3 Education Technology Policy Considerations

This consultation into the use of technology, clearly highlights that it is important to avoid broad sweeping views on ICT for education policy. No single set of initiatives will achieve the same results everywhere because school systems differ, local environmental conditions differ, the teachers and educators differ as well as the availability of quality learning materials. So it is important to recognise that improvement in the quality of instruction is a prerequisite to implementing any new digitally-driven education program. Then technology can support the objective of improving quality, with ideas such as adaptive learning, online tutoring, platforms for asynchronous learning and other means of differentiating instruction.

Correctly implemented technology can add real benefit to both school management and the wider information management of education that central and local governments need. Hence, it is important to use technology that helps measure the impact on learning and can collect valuable information on student learning levels. Learner analytics enable policy makers and educators to track student engagement and discover any gaps in the learning process. Hence, it is a strong recommendation that data analytics and information management are a critical part of the entire ICT for education process.

A robust policy framework on the use of technology in education is essential and many countries in Africa are formulating such policy to ensure long-term sustainable resilience. Policies that cover the development of materials and for distance learning. Each country should identify the critical areas where policy guidance is needed. Many participants commented that policy should also hold the internet service providers to account, to make sure they provide a service appropriate for the education sector and where possible to make educational content zero-rated.

One of the lessons learnt in implementing digital technologies in Kenya has been the importance building monitoring and evaluation into policy. This has been especially apparent during the Covid pandemic with many remote learning interventions made urgently but without mechanisms in place for assessing their effectiveness. Monitoring and evaluation need to be factored into the budgeting and funding of ICT for education projects.

An important point made about technology is the sustainability of the hardware. If one laptop per child programs are to be implemented then what is the lifespan of the laptop? What servicing and replacement plans are needed a few years hence? As technology evolves at a rapid pace, then what budgeting needs to be made for future ICT for education projects that should be an improvement on existing programs?

Prior to the pandemic, Nigeria has been working hard on a policy for teacher training, skills acquisition and generally the use of ICTs in education. The biggest gap for Nigeria is devices and infrastructure and given the size of the population this represents a major challenge. The Federal Ministry of Education is presently working on a policy for devices, their provision to learners, the maintenance, and the sustainability of having a laptop/tablet program in education.

Some participants in the meeting referred to the need to improve the technology knowledge of policy makers and implementers in government. Ministries of education, as well as teachers, have always had strong curriculum and syllabus knowledge but some institutions do need to build more internal capacity in understanding the use of technology in education.

An important message for the international education providers that came out of the meeting was that digital content should have more interactive lessons, with more visual and pictorial aids that match the digital format. Equally, the content should be age appropriate and accessible for teachers to make the necessary adjustments when teaching at different grade levels. What we have seen across the African continent during the pandemic has effectively been remote emergency learning. So the learning using online platforms has not really been e-learning. Putting existing materials online with no interactivity, feedback or means of assessment has only been a temporary stop-gap, because this does not properly leverage the scope of digital technologies.

Cameroon's ICT for education policy was first produced in 2007 and has recently been revised with the support of the Commonwealth of Learning (COL), which is the world's only intergovernmental organisation solely concerned with the promotion and development of distance education and open learning. Key strategic pillars of the policy include connectivity and infrastructure deployment; human resource capacity building in ICTs; teaching, learning and assessment; school management; partnership initiatives; and monitoring and evaluation. Recently they have added the development of open educational resources (OERs) and online learning to their strategic pillars.

Malawi has also been working with the Commonwealth of Learning to develop their ICT for education policy. The ministry of education has established a new directorate of open and distance learning with a policy that is aligned with the SADC framework for distance learning.

In terms of curriculum reform and skills development, the ongoing impact of the Covid pandemic has meant policy makers revisiting previously designed guidelines. For example, the higher education sector in Nigeria has not had its curriculum updated in nearly 15 years. The regulatory body, the National Universities Commissions, started the process of updating the core curriculum two years ago with minimum academic benchmarks across the entire university system. The pandemic brought about new perspectives and the role technology plays on the updated curriculum was enhanced because of the realities of distance learning. In addition, 21st century skills in the curriculum now include digital literacy, communication, and employability skills – all affected by new technology.

Although the pandemic has led to a shift in mindsets amongst teachers in the use of technology in the classroom, there remain many teachers in Africa, especially in rural areas, who want to stick with more traditional methods. A variety of educational transformation and ICT policies have been undergoing reform and updating for several years in many African countries, and for some the onset of Covid brought home the reality of how slow the completion and implementation of these policy reforms have been. The pandemic has accelerated the whole process and led to multi-stakeholder approaches that bring in other parts of government responsible for communications and the digital economy and the private sector – telecommunications operators and education solution providers.

An important point raised in this meeting around policy for technology in education was that there has been a considerable lack of consultation with the users and learners as to what works. More needs be done, not least because the learners are the digital natives more adept at navigating the technologies than many of their teachers. This may represent an opportunity to develop appropriate learner-centred educational technologies that will increase ability in children to be the drivers of change and modernisation. This reflects the views of many people in the meeting who stated that a top-down approach to ICT for education policy in not enough, rather a far more polycentric approach is needed to properly address and problem-solve the many

complexities of deploying emerging technologies in education.

A commitment to policy management of technology in education requires an enabling legal environment to both empower and protect. Misuse of data, misleading and often harmful online content and the determination of age appropriate technology all form part of what many officials see as a risky environment for education. And many countries are operating in an environment where there is not even a digital equity policy, a problem compounded if they do not have the technical knowhow capacities.

Some participants in the break-out groups pointed out that during the decades-long career of any teacher huge social changes take place, which is why continuous training is required to keep up with those changes. Covid has accelerated change, compressing demand for new programs, reforms, and digital transformation into a very short period. An important policy recommendation is for governments to ensure they update their compliance frameworks for CPD to account for digital skills and online teaching competencies. Not forgetting that new competencies need new accreditation. Compliance and accreditation frameworks fits into the bigger picture of overall government policy for online learning.

Good advice from Gauteng Province in South Africa is that such a huge undertaking needs consideration of the change management processes and whole system understanding of the use of ICTs in the classroom. Influencing factors on such change management include teacher ICT literacy levels, the ICT infrastructure, connectivity and devices, the school culture, ICT access management, digital competence in the school and then coordinated planning and leadership to ensure effective implementation.

The use of technology in education in the poorest regions and countries with the least developed ICT infrastructure is limited in scope. For example, Sierra Leone has over 12,000 schools, most of which are in rural areas without connectivity. They cannot really on technology for teaching and learning but they have started using technology at the education management level – to supervise teaching, monitor lesson plans and school attendance. So they are using the management information system to collect school and classroom data that will better inform future e-learning policies and programs. Affordability and accessibility remain the biggest challenges, needing more investment and support from international partners.

One educational technology that got a particular mention was the use of interactive whiteboards in special needs education. There are many specialised assistive technologies and for helping children with disabilities in the classroom, but the general purpose interactive digital whiteboard (IDW) can offer solutions to a variety of impairments. For visual impairment the IDW can zoom in or enlarge text; built-in speakers in combination with speech-to-text software can support audio impairment; and teachers can use digital whiteboards to integrate multimedia into lessons that can greatly help with attention impairments.

What should not be forgotten is that technology, properly deployed, can make things easier; but in the reactive environment imposed by Covid, people have felt overwhelmed by the demands of having to quickly reskill themselves in the use of new software applications for education. People often work in silos and that can be detrimental to having a consistent message when monitoring and reporting learning outcomes. We have seen the use of some social media platforms to deliver teaching and communications with learners during the pandemic. Policy makers must mitigate against potential risks of bringing social media into the education ecosystem, not least misinformation, data privacy and screen time. Conversely, social media, used judiciously, can really help with reaching out to students, keeping parents updated and building learning communities. Every country represented in this meeting used the likes of WhatsApp during school lockdowns. Social media perfectly illustrates the many dichotomies that technology in education brings.

2.4 Digital Skills and ICT Integration in Teaching

Most sub-Saharan African countries have introduced digital skills development into both their curricula and their teacher training programs. Basic and intermediate skills (as defined by the ITU) are featured in pre-service training. Intermediate skills enable people to use technology in “meaningful and beneficial ways” and, in contrast to more basic universal skills, are required to reach the pedagogical objectives.

An important feature of educational software and e-learning technologies should be that it supports teachers in adapting their instruction to match the different levels of students and collect valuable information that can help measure the impact on learning. For example, adaptive instructional technology can interact with the student, access their level of knowledge and accordingly direct lessons based on their current level of comprehension and ability. Such adaptive instruction can make a real

difference in accelerating any recovery from learning loss.

South Africa, which is introducing coding and robotics into the curriculum, is still taking the approach of prioritising teacher performance and capacity. This also includes the teaching of subjects using ICTs and working with the private sector who can provide solutions aligned with the national curriculum. During the pandemic, provincial departments of education have switched teacher professional development courses from face-to-face to online. Many teachers were not ready for this shift and so the departments took a step back and made sure they slowly built on the teachers' ICT skills as well as the subject training.

Comments were made about the challenge of ever-increasing class sizes in some parts of sub-Saharan Africa. Governments have had to reduce these class sizes to accommodate the new health and social distancing rules instituted due to Covid, which has meant longer school hours and the implementation of rotation systems for school timetables. Potentially, online education can offer a solution to the conundrum of class size and at the same time reach even more learners. Yet, for that to be a sustainable policy there needs to be considerable improvement in access and the equitable use of devices.

Successful development of digital skills starts with making necessary reforms and improvements to both pre-service and in-service teacher training. The changing work landscape of the fourth industrial revolution means a matching transformation in education is required that must include the training of the use of ICTs for learning and teaching. Ghana is currently implementing the Common Core Program, produced two years ago to develop the key competencies of learning such as critical thinking and problem solving in learners. So now the teachers are being provided with the necessary resources, such as the recent one laptop per teacher program.

South Africa has developed its own framework for digital skills that are largely categorised into three levels: basic digital literacy for educators; intermediate skills that allow teachers to use a wide variety of platforms; and advanced skills where teachers can develop and innovate in newer competencies such as big data, cybersecurity, artificial intelligence, and the internet of things. These categories following closely the ITU digital skills framework. The whole aim is that teachers can collaborate more, create their own content, guide learners to be better prepared for jobs of the future and meet the national ICT and developmental vision of the country.

One area of teacher training policy that was identified as having scope for improvement is the direction and guidelines that governments give to universities. If teacher training requires more digital literacy and an appreciation of the role of technology in education, then it should start in the universities who currently have no frameworks from governments in Africa, on how to further embed digital skills into the higher education programs.

Cameroon has a policy for guiding the introduction and use of technology in education that requires schools to teach ICT as a subject and to teach other subject using ICTs. In addition, they now teach digital skills, coding skills, the ethical use of technology and teach students on the importance of privacy and digital security. The basic concepts of ICTs are introduced in the curriculum from nursery level education.

South Africa is introducing coding and robotics to its core curriculum aimed at developing digital skills and preparing learners to solve problems, think critically, work collaboratively and function in the information-driven world. Students already have the basic skills and now they want to learners to a higher level with a foundation phase for Grade R to Grade 3; an intermediate phase for Grades 4 to 6; and a senior phase for Grades 7 to 9. So going from the basics of pattern recognition and electronic communication to the more advanced line-based coding and application skills on different platforms, the vision of the government is to have young South Africans better prepared for the 4th industrial revolution and future digital landscape. To support this project they have started developing digitally-based content that can be pre-installed on devices to allow for offline learning.

The discussion on technology in education also brings into the spotlight the question of the changing role of teachers. The teacher has always been the source, provider, and disseminator of knowledge but with such a wide range of technologies from OERs to adaptive instruction to e-learning platforms, the teacher then becomes the facilitator of learning. If technology is driving this process towards the facilitation of learning then how is that being reflected in current pre-service and in-service teacher training? The biggest problem in developing countries is having the resources to make such fundamental changes to well-established professional development programs and standards. Just calling teachers to a workshop program for a week is not going to change decades of teaching methods. Gradually, as new generation of teachers enter the system they will be better placed to mediate learning with technology in the classroom.

Teacher trainers who are effective face-to-face may not necessarily be equally effective in delivering virtual training programs for teachers. It is a different ballgame. The challenge for governments is not just the upskilling of teachers but the urgent investment required in upskilling teacher trainers – especially in online pedagogy, child engagement and virtual lesson design. It is also important to have feedback mechanisms so teachers can respond with their own comments on how effective the virtual programs are. Reforming teacher training to incorporate new technologies in education should also include the introduction of softer skills training, as resilience, agility, and emotional intelligence are key for teachers making the digital transition.

In terms of digital skills, this is the fastest growing sector as ICTs evolve and the needs of digital competencies change every day. Legislation can hardly keep up, but that is not to say policy frameworks cannot be devised where pedagogical solutions are the basis of guidelines, and the use of technology follows. If the technology fails to meet those desired quality of instruction and pedagogical standards then quite simply it is not suitable for education. In doing so the need to protect learners and those within education from breaches of their privacy and harm to digital well-being, is the most common sentiment expressed during this meeting.

Some officials commented on how, over the last few years, the integration of ICT into teaching and learning, the e-learning component, has been the weakest element of ICT for education policy implementation. The pandemic has forced educators to adopt remote learning strategies, with a focus on digital content and now the integration of ICTs concerns those dealing with recovery from learning losses.

For developing digital skills then the potential of technology needs to be properly realised to motivate learners. E-learning materials that are interactive and capable of unleashing the wide variety of digital features are more likely to motivate students than just reproducing printed materials in plain format, such as PDF. Electronic content should be visually attractive and encourage interaction with the learner. In some conflict areas in Cameroon they managed to introduce interactive lessons and games that quickly helped rehabilitation. Leaners form those difficult areas can testify that technology did a tremendous job when introduced into the educational system.

For skills and digital literacy, Cameroon has implemented UNESCO's ICT Competency Framework for Teachers (ICT-CFT) – a training system based on knowledge acquisition, knowledge deepening and knowledge creation. It is a Framework designed for teacher training personnel, educational experts, policy makers, teacher support personnel and other professional development providers, while keeping in line with national and institutional goals. The Framework pinpoints 18 ICT teacher competencies organised according to the six aspects of teacher's professional services that include: understanding ICT in education; curriculum and assessment; pedagogy; application of digital skills; organisation and administration and teacher professional learning.

If we want to begin to look at what role technology can play in facilitating teaching and learning, then we need to go back and look at how we frame the way in which technology can be integrated into our curriculum. This starts with teacher education and how it relates to classroom practices, allowing us to gradually transition into the era of digital education. Current ICT policies seem right in their objectives but are not giving the right results. This may be down to implementation or even the generational gap between what is required in terms of using technology in the classroom and the current capacity and skills training of the teachers.

2.5 Technology for Content and Curricula

In Africa many countries have been reforming their curricula over the last few years to being competency-based. These reforms are still ongoing and will take many years to embed but what educators have noted because of the pandemic is the need to bring in more digital skills and literacy to the curriculum. These skills and the need for digital mentorship are necessary as we see an increase in the use of ICTs in education, as well as better preparing students for the digital world of work and jobs of the future.

For educational content that is provided using ICTs, then there are effectively two gatekeepers: the teacher and the parent. In Kenya, they recognise this and have opened a communication channel with parents by messaging them do's and don'ts guidance to online content. Likewise in South Africa they are using the convening of parent meetings to outline both upsides and downsides of digital technologies. The provincial education departments are encouraged to train specialists within districts to advocate internet safety.

Regarding content creation and generation, a few participants referred to how they would like to see more African-generated content for African children rather than the American and Euro-centric content that dominates the online landscape. Why have matriculation papers with quotations from Voltaire

and not Chinua Achebe? Possibly, the opportunity to produce more locally-generated content by leveraging technology in education can help make the curricula more relevant to African children.

At the national level in South Africa they are putting their entire curriculum onto video with lessons and exercises. This still requires teacher preparation to mediate the streaming of digital content and there will be a group of learners whom technology cannot reach. In South Africa, online schooling is not suitable for the majority of children who do not have a dedicated space or the right learning environment at home. The concern is that inequalities may widen further because those who can take advantage of digital learning technologies will accelerate away from others.

The Government of Malawi is trying to take advantage of open educational resources (OERs) and pulling together existing resources to produce appropriate content in line with the national curriculum. Hence, within the Ministry of Education they have a Directorate for Quality Assurance, along with the Malawi Institute of Education who are responsible for curriculum and the College of Distance Education who have the experts in instructional design. They are now developing materials that will be available both online and offline.

Kenya's now well-developed Digital Literacy Program (DLP), which as well as involving devices for teachers and learners, is also underpinned by the Kenya Education Cloud. Now the ministry of education ensures that any content they develop in printed form is also available as electronic content on the cloud as managed by the Kenya Institute of Curriculum Development (KICD). They have realised that this technology needs oversight and monitoring by curriculum support officers who visit classrooms and are able to relay live updated information to headquarters using tablets. The data is analysed through their education management information system (EMIS).

With technology offering a huge wealth of potential in harnessing knowledge but with almost unlimited available content, the question for policy makers is to determine which online resources meet national curriculum standards. Many countries in Africa have the institutions in place to help answer this question. For example in Uganda, they have the National Curriculum Development Centre which works with content developers and provides guidelines to teachers for what online content is appropriate per grade level. Still, given the nature of the internet, this is far from easy in practice – especially in a local context where each school needs to have well-trained IT managers that can judge what should or should not be accessible online.

Furthermore, content does not necessarily have to be curriculum aligned. So there must be a balance when devising guidelines for accessing content to avoid having regulations that may be too Draconian and at the expense of making the most of the very useful open educational resources and wealth of informative material that is available online. Developing local content should be part of this balance. Curriculum reforms in Africa are aimed at encouraging more problem-solving and self-learning as emerging skills, so a multi-disciplinary approach should be encouraged amongst learners such that they are motivated into developing local content and how they can teach themselves outside of the classroom.

Ministries of education maintain strict protocols for ensuring that content developers stick to the approved national curriculum. Those developers work with the quality assurance department that ensures appropriateness of content. Now there needs to be closer integration with the ICT experts and digital designers who develop the online learning platforms such that quality standards are maintained.

Covid has taught us all that it is time to use another lens when looking at teaching and learning as we move away from just the four walls of the classroom, curricula need to be more focused. Curriculum have become very broad and there is a gap in the integration of ICTs and the quality of monitoring and evaluation of their impact. Africa, like other parts of the world, now sees many projects spending a lot of money on devices and ICTs without a true picture

of how this is delivering quality education. Local examples and specific projects are often easy to identify but nationwide roll-outs of ICT for education paint a far more mixed picture.

In the discussion over digital content and how teachers are faced with the changing role of becoming a facilitator, there is concern over taking the human relationship aspect out of schooling. The learning management platforms need teachers to properly disseminate knowledge and in countries like Ghana they are supporting teachers to better design online assessment that can monitor and evaluate learner performance. To ensure consistency and uniformity it is strongly recommended that teacher collaboration in assessment is encouraged to overcome challenges of equity. One powerful advantage of well-designed educational technology is the ability to collaborate so much more.

2.6 Being Vigilant to the Potential Harms of Technology

Students are already exposed to technology through their devices, smartphones, and internet access at home. So an important question is what kind of provisions need to be at school and what can be done to make sure the control measures are in place? The GEM Report on the use of technology in education should also make consideration of the psychological impact of online learning and what is the most appropriate technology for the classroom setting. For example, some departments of education that have supplied devices (tablets or laptops) for school have made sure that social media applications cannot be installed.

We are seeing some institutions regulating the use of educational software, but the consensus is that this now needs to be done at the national level to ensure safeguarding and data privacy. Such regulation should also include monitoring protocols and guidance on screen time, as well as being in line with the pedagogical approach of the curriculum. In South Africa they have recently enacted legislation called the Protection of Private Information Act that, amongst other things, covers those sites accessed by children. The problem is that, if kids have smartphones they can access anything in the world – unless a country blocks certain types of websites completely. Hence, good mentoring and "life orientation" are necessary components of using technology in education.

Critically, digital mentorship of children is a necessity to help them realise what threats they are likely to encounter when online. This includes guidelines for sending messages, not interacting with strangers, how to deal with pop-ups and what the child should do when faced with cyber-bullying. While online learning is encouraged, then such a balance is required and that can only be achieved by teaching digital literacy in the modern world.

In Gauteng Province, South Africa they launched the "Schools of the Future" program six years ago, to embrace technological development in the classroom. The ongoing deployment has not been without its challenges – many of them unforeseen. The infrastructure comes first, needing to build smart classrooms with technological requirements and equipment. Unfortunately they have had to deal with cases of theft and vandalism as a state of the art ICT school opens. New, shiny technology can attract bad elements, making the roll-out far more difficult. Then, when first distributing tablets, they saw extensive damage, but still had to bear the cost of replacements. This was an expensive lesson that changed their strategy to focus on smart classrooms with teachers using laptops to teach and integrating ICTs into the learning process. This has taken several years, with older teachers finding the changes difficult initially.

One concern over the use of the technology in the classroom is maintaining the engagement and activity of learners, such that they are doing more than just staring at an interactive whiteboard or a computer screen. In the Seychelles, for example, they have mitigated against this concern in their STEM education programs by making sure the use of technology has a practical "hands-on" approach. This may include involvement in international robotics groups or programming simulations, such as satellites for monitoring the environment. This produces multi-faceted learning outcomes that empower the students to problem-solve and design new ideas themselves – resulting in students being far more engaged with the technology.

As we see the expansion of the use of technology in education, the more we will encounter issues over data privacy and digital sovereignty. From the European Union's GDPR and the more recent Chinese Personal Information Protection Law (PIPL), other countries are now pursuing their own agendas around technology sovereignty and localisation. Nigeria now has a data sovereignty and privacy law which needs to be referred to when implementing new IT projects with international partners and NGOs; this in turn will impact the planning and budgeting of large scale ICT for education projects.

Pre-packaged solutions from international organisations will mostly not account for a policy like this, and more will have to be done by solution providers in the future to consider local context.

Regarding the negative aspects of technology in education, what stood out amongst participants in the meeting was concern over girls and particularly online abuse. As the roll-out of technology in education continues unabated we need to be very sensitive to cyberbullying and the potential dangers of gender-based violence promulgated online. The pandemic has accelerated the use of digital platforms for learning, while also highlighting girls' diverse digital realities. The gender digital divide in connectivity, devices and skills is real.

The use of technology in education should not distract from the main objectives of building more resilience and sustainability, while still inculcating the curiosity in children. Technology can enhance learning, but the overuse of certain methods such as gamification could potentially distract from the bigger educational goals. As stated by many participants, the development of local educational content within a local context is a necessary part of ensuring the sustainable use of technology in education.

Toolkits for online learning are useful for parents as well as teachers. Parents need to know how to respond to their child's emotional state of mind, who may show behavioural changes due to spending a lot of time sitting in front of a laptop – sometimes introversion, sometimes aggressiveness. This entire socialisation aspect of online learning and pedagogy needs to be considered. Policy recommendations include looking at three different levels of socialisation: physical presence at the start of the lesson, social presence in terms of their interactions with the teacher and other students, and cognitive presence – particularly how to achieve an enquiry-based online environment. It may also help to work on a balance between synchronous and asynchronous teaching methods to ascertain and evaluate learning outcomes.

An important challenge that will need to be addressed by policy makers and educators is the role of the parent with the advent of more online and blended learning. The pandemic has meant more home schooling and expectations are that as blended learning expands so will "out-of-classroom" learning. Yet, parents are not trained in the use of e-learning platforms or digital applications for education. Parents falling behind their own kids in the use of emerging technologies, raises many questions regarding age appropriateness, online safety, manipulation of software, cheating, misuse of social media … all of which most parents are ill-equipped to deal with.

2.7 Closing Statements

Scott Smith

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

It is evident from the break out groups that the policy makers have big challenges ahead of them in determining how to best utilise technology and education and the requisite policy guidelines. The pandemic exposed some real truths and long-term impacts. 43% of students lacked home internet access at a time when digital learning was vital to ensure the continuity of learning. Due to learning losses, and increases in dropout rates, this generation of students stands to lose $10 trillion in future earnings – almost 10% of global GDP. Students across Africa have lost at least the equivalent of a year and with properly implemented technology students are mor likely to have the opportunity to learn.

Governments in Africa have been utilising TV and radio to deliver content and reach the widest possible communities. Some refer to these broadcasts as "low-tech" educational technology, which although effectively used as a form of emergency remote learning, offer no interactivity nor align with newly revised curricula. Competency-based curriculum and skills development, along with more learner-centred models are at the heart of many education system reforms across Africa. In this regard computer-aided instruction may offer an opportunity to leverage technology that helps teachers focus on student competencies and especially support any remediation efforts on loss of learning.

Of course, effective ICT for education implementation has a cost, a very high cost when considered on a national scale. The World Bank has produced a recent report called Cost Effective Approaches to Improve Global Learning. One country highlighted is Uruguay, that has implemented a very targeted approach with technology at scale, with evidence of positive impacts for disadvantaged students. *Odilo* was strategic partner of the Uruguayan Ministry of Education, to meet the challenge of improving reading comprehension and student educational performance. The solution was to provide students with a digital library, interactive reading plans and guidance for teachers. Equally, *Odilo* has been implementing these solutions around the world with

'unlimited learning platforms'.

This type of educational platform is designed to improve reading habits and comprehension, improve writing skills, and ultimately foster a culture of learning. The last 18 months has seen the launch of these platforms in 10 African countries – spanning universities, K12 education and corporations. Plans with ministries of education are to launch a reading and writing platform that includes programs for STEM education, learning communities for entrepreneurship, digital skills, basic skills, and teacher training and certification. Most importantly, via a single application this platform works offline as well as online.

So *Odilo* is pioneering an approach to platform development that supports both national curricula and national ICT strategy by developing it in partnership and in the name of the country. A homegrown education application, that is supported by a global developer and encourages local content, has the potential to reach the widest possible audience of learners. This is the scaling and democratising of education that *Odilo* wishes to bring to governments and educators of all the countries proudly represented in today's meeting.

Haroon Mahomed

At the Western Cape Department of Education, the e-learning strategy is based on capacity building, enabling the learning environment and digital and online technology. The Western Cape Province has had many years of introducing digital approaches to education and the majority of schools have devices, along with relatively high connectivity. That said, whenever visiting schools districts and asking how the processes are going, the first refrain is the difficulty with connectivity.

Connectivity is a big issue. Every single one of the 1,550 schools in the province does have healthy access to devices and connectivity. Network capacity and cost of data lie as much at the heart of connectivity issues than just access points and last mile. What has come up in the discussion today, in the context of the pandemic, is that the majority of communities cannot afford online schools. Western Cape has created the concept of online schooling, with the possibility of putting all curriculum materials on a well-packaged system accessible to all schools. What then needs to happen is the capacitation of teachers, learners, and parents to be able to effectively implement the curriculum.

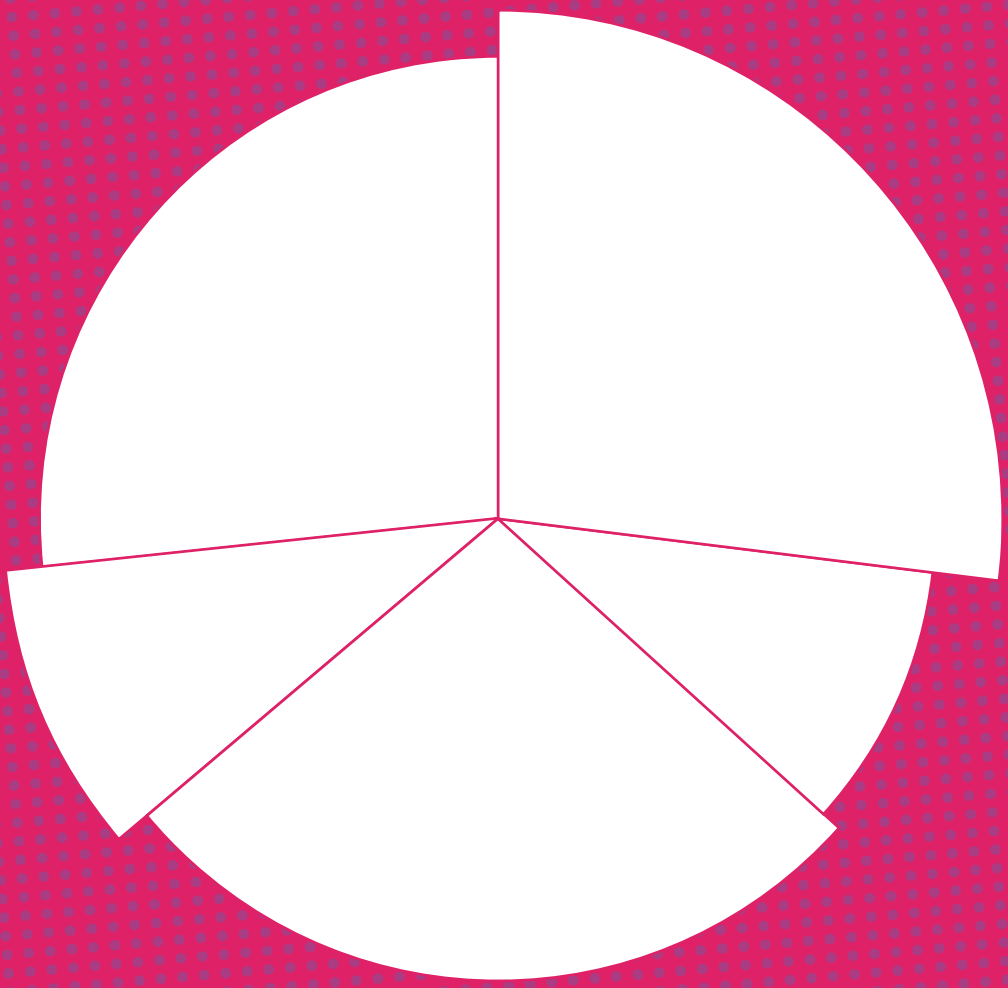
In this meeting it was encouraging to hear people speak of psychosocial support and Western Cape has also put together a program, with much available digitally. Of all the many challenges it is the concern over the digital divide that stands out. How do we accelerate access? Particularly, how do we accelerate network access? A heart-warming story of a school in a rural community on the border of Western Cape and Northern Cape is that they clubbed together to have an access point and tower while waiting for government services to be available.

Up to two-thirds of our schools will still be struggling with the digital system so the department has made available a top-up printing budget for schools. Now there is a challenge of enabling more use of printed materials by constituency. To mitigate against such challenges the department of education has equipped school districts with a central point where teachers in the province can live-stream lessons to groups of other schools. Since the onset of the pandemic it has not been easy to monitor and evaluate, but with the information coming from schools it seems that although a lot has been done with ICTs for education, the uptake is not following quite as strongly.

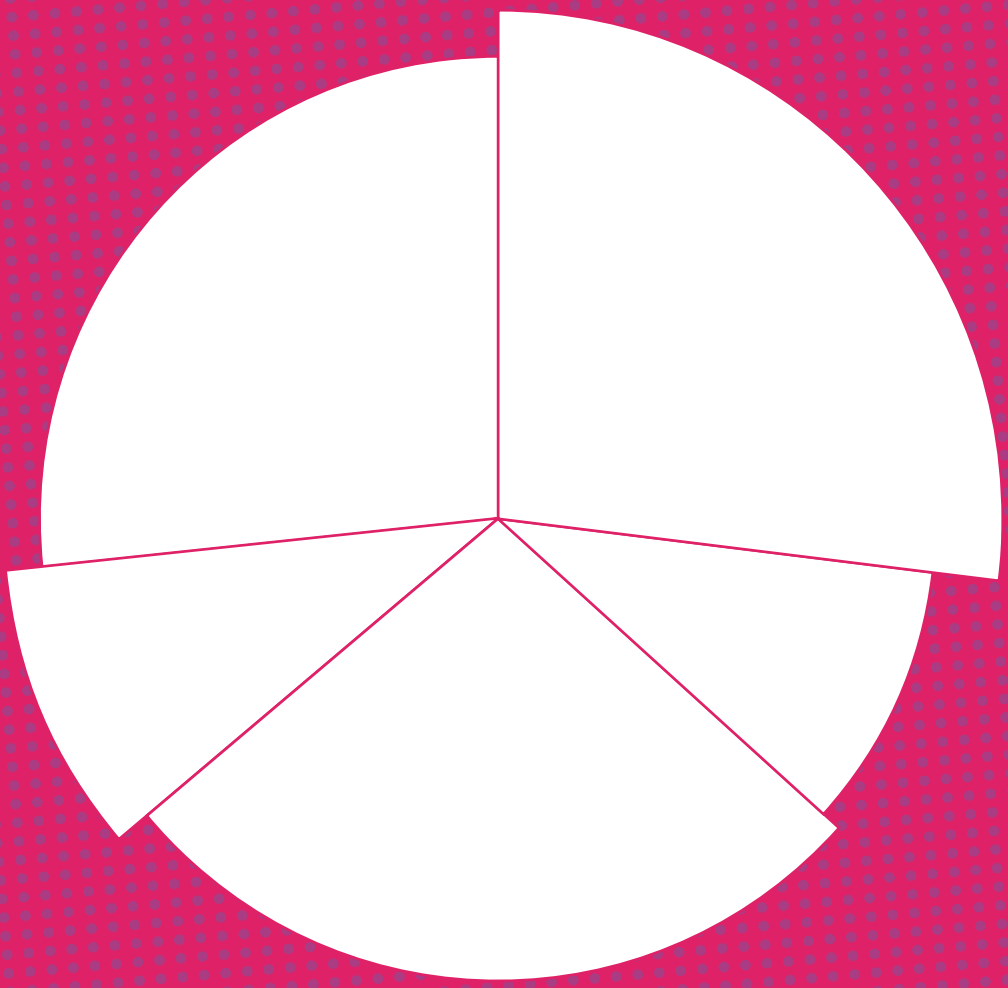
We also must remain cognisant of overloading materials onto education platforms and there has been feedback that perhaps there is too much information available. So guidance is needed on how to choose allied with useful content. The three priorities of digital learning that have been adopted in the province for the next few years are blended learning, foundational phase, and psychosocial support. Blended learning can be used to cope with the variations in the education system to mitigate learning losses. Finally, a lot of discussion has been how we can provide more guidance on the selection of core and fundamental learning.

- 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: knowledge generation and creation for skills transformation

27 October 2021

Manos Antoninis, Director, Global Education Monitoring 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

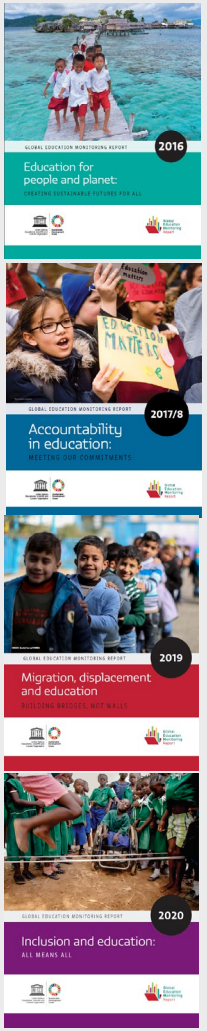
'be the mechanism for monitoring and reporting on SDG 4 and on education in the other SDGs'

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



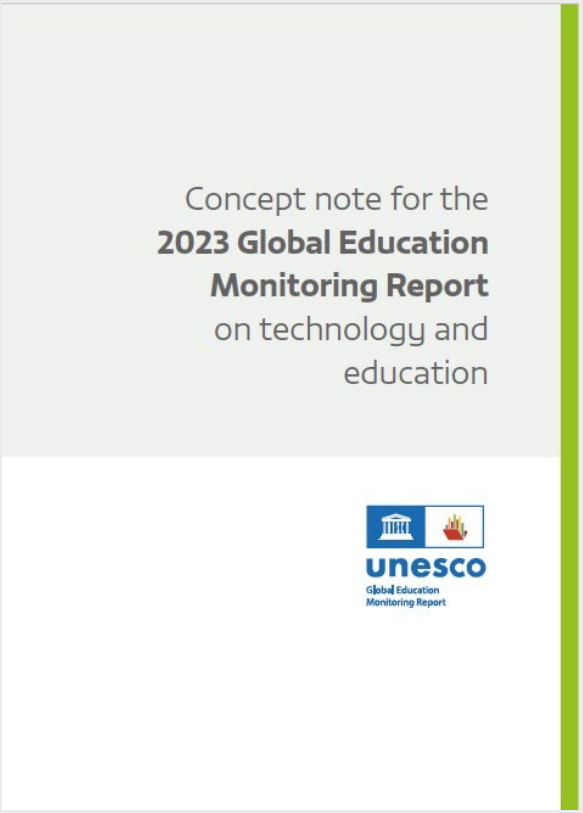
2023 GEM Report approach

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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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 (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?

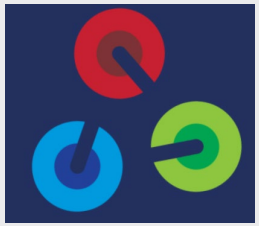
Overarching questions

- **Basic skills:** transform pedagogy to engage students, improve learning: technology for learner-centred education
- **Digital skills:** ensure education systems provide the new skills that technology demands: safety, privacy, screen time, well-being
- **Curricula:** enable use of technology when reforming curricula and designing learning materials
- **Content:** determine specifications for online resources that meet national standards and are age appropriate
- **Policy:** develop comprehensive online and ICT for education policy frameworks

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



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Global Education Monitoring Report

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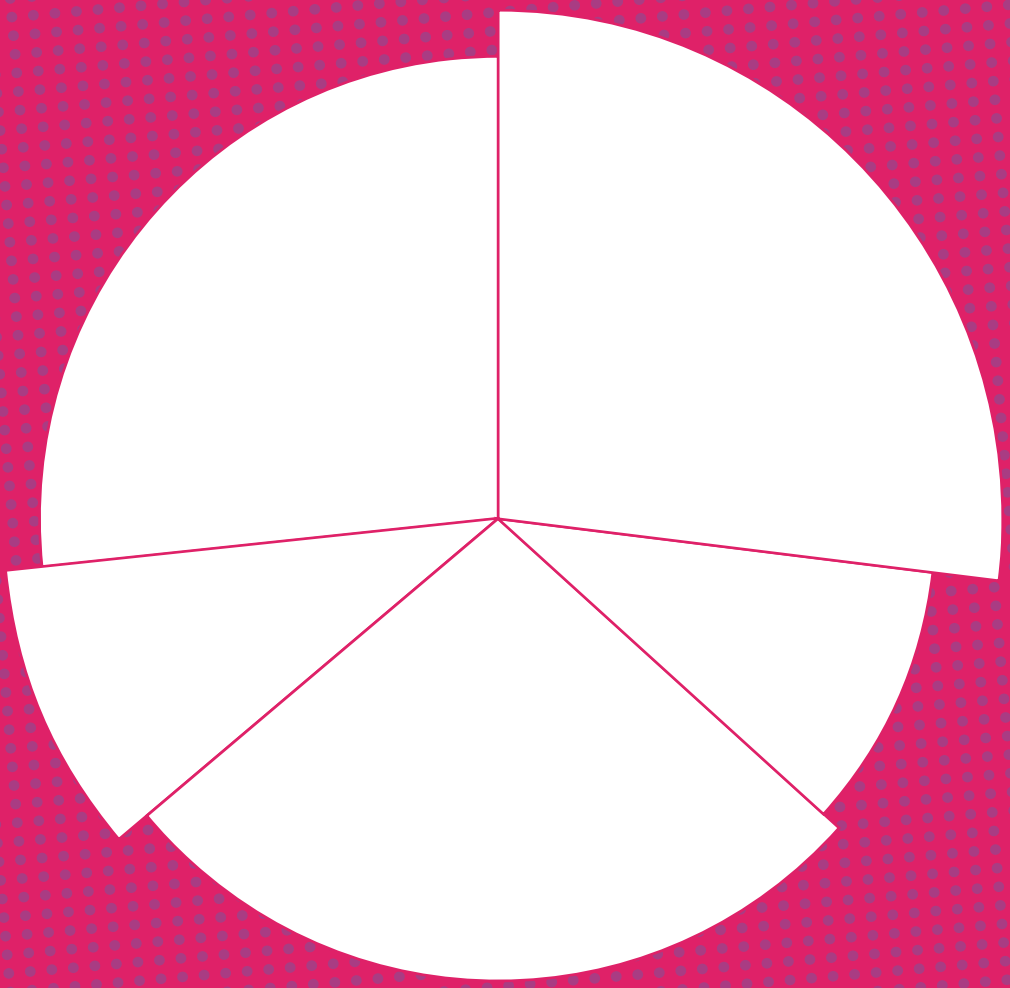


APPENDIX B

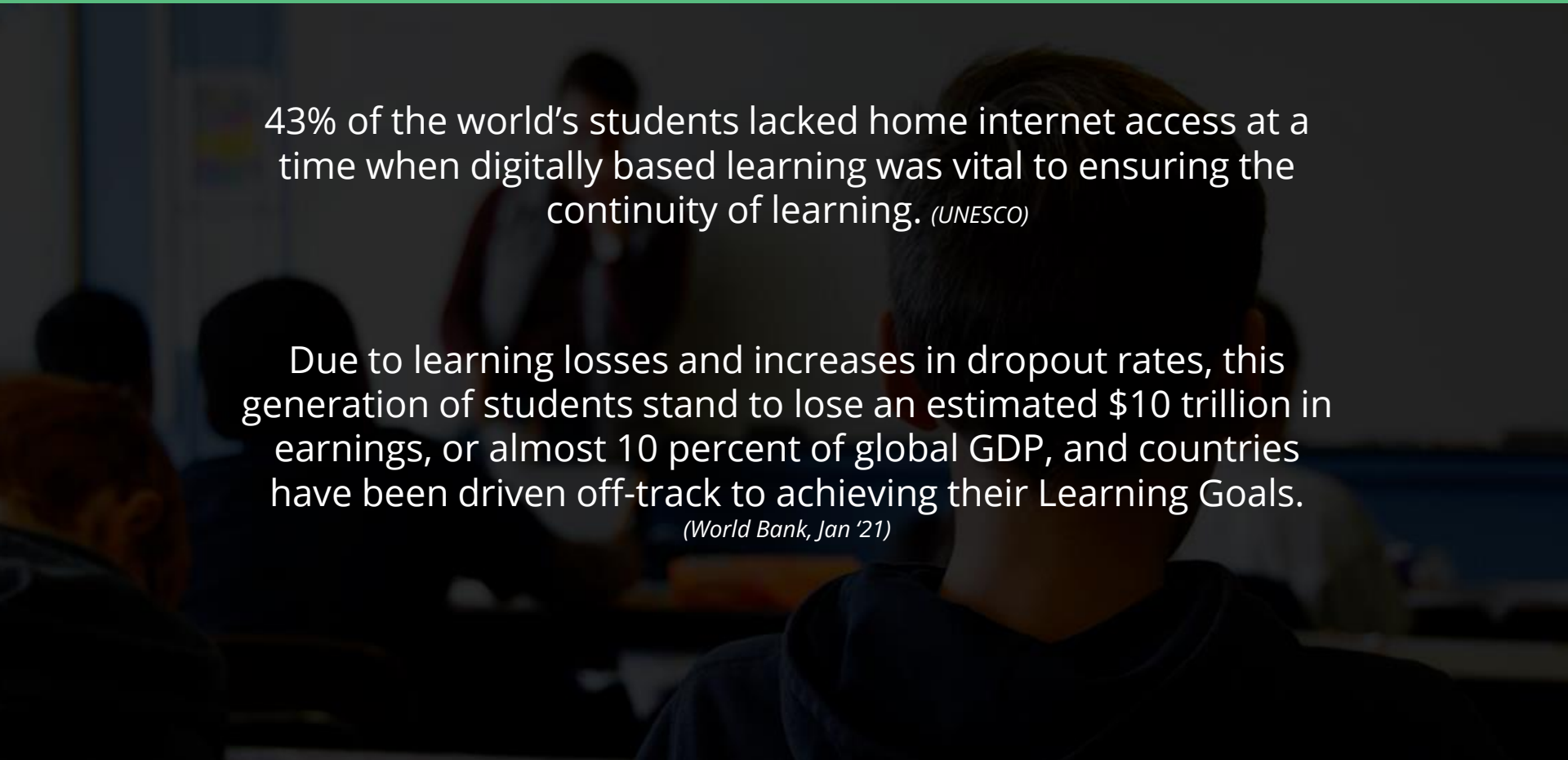
ODILO

Closing Remarks:

Scott Smith, Vice President
Global Government Sales

unesco
Global Education
Monitoring Report

PANDEMIC EXPOSED SOME REAL TRUTHS …
AND LONGTERM IMPACTS …



43% of the world's students lacked home internet access at a time when digitally based learning was vital to ensuring the continuity of learning. *(UNESCO)*

Due to learning losses and increases in dropout rates, this generation of students stand to lose an estimated $10 trillion in earnings, or almost 10 percent of global GDP, and countries have been driven off-track to achieving their Learning Goals.
(World Bank, Jan '21)

REMEDIATION OF LEARNING LOSS REQUIRES GOVERNMENTS TO CONSIDER LEARNER-CENTRED EDUCATION POLICIES

The use of adaptive or self-paced software that targets learning to the level of an individual child can be a highly cost-effective intervention.

Uruguay implemented this approach at scale, with suggestive evidence of positive impacts that were larger for students from disadvantaged backgrounds.

(World Bank, Cost Effective Approaches to Improve Global Learning)

LEARNER CENTERED EDUCATION IN URUGUAY: IMPROVING LITERACY AND READING COMPREHENSION

Challenge: Ensure access to relevant and quality content for all Uruguayans. Improve ratios of reading comprehension and student educational performance

Solution: Uruguay implemented digital library and reading plans in partnership with ODILO

Impact:

600K	3,000	+10,000	+100'S	+1000'S
Users	Schools	Digital Tiles	Reading Plans	Assessments

Results: ODILO's platform has become the most widely-used educational solution of all those available in Uruguay

Montevideo Portal

Noticias | Futbol.uy | Pantallazo | Cartelera | Gastronomía

Lanzan Biblioteca País, el proyecto del Plan Ceibal que ofrece 4.000 libros gratuitos

La plataforma permite navegar por el catálogo, leer en línea o descargar libros para leer sin conexión a Internet.

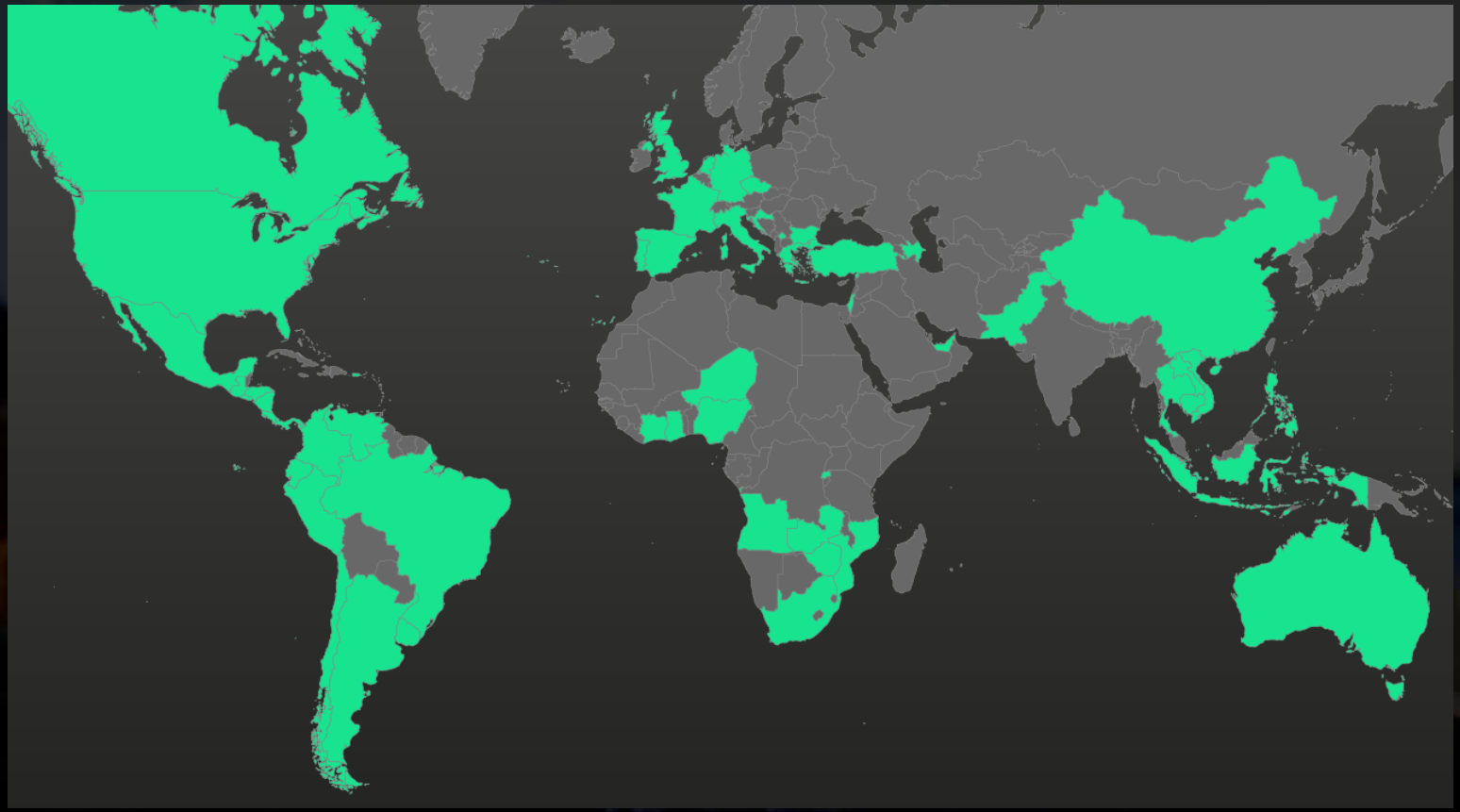
06.12.2018 10:29 Lectura: 2'

Biblioteca Pais is launched, the Ceibal Plan project that offers 4000 free books

Biblioteca Pais: 4000 titles available to everyone.
All Uruguayans can access

ODILO

ODILO IN AFRICA AND AROUND THE WORLD

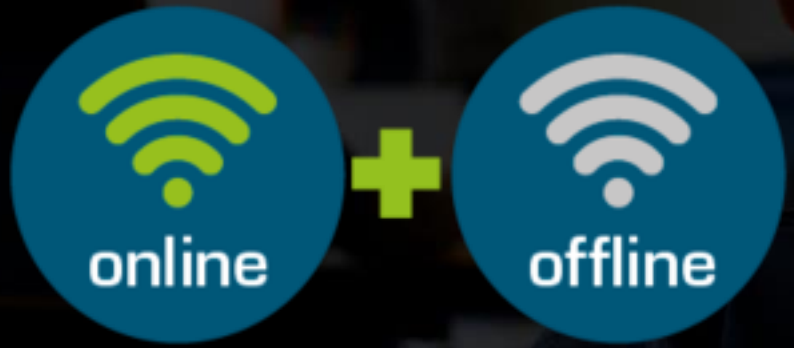


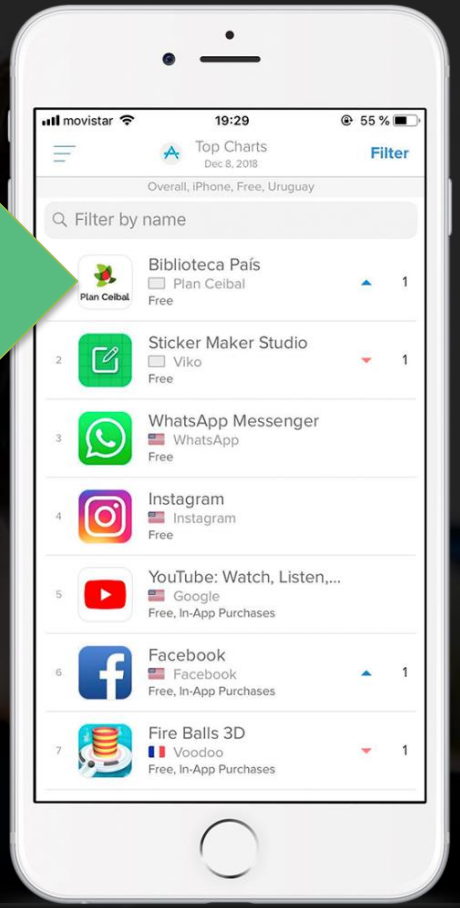
LEARNER CENTERED EDUCATION IN URUGUAY: IMPROVING LITERACY AND READING COMPREHENSION

ODILO

Plan Ceibal

ODILO: THE MOST DOWNLOADED & TOP RATED APP IN URUGUAY!





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Thank you!!

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