

GOLA!

GLOBAL ONLINE LEARNING ALLIANCE

AFRICA SPECIAL: REPORT ON OUTCOMES OF
GOVERNMENT ONLINE MEETING – 29th September 2021

ADDRESSING LEARNING RECOVERY: STRATEGIES FOR
NUMERACY & LITERACY



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FORMAT AND PARTICIPANTS

SECTION 1.

Format and participants

1.1 Introduction

The purpose of this private video meeting for African government officials, organised in partnership with Whizz Education, was to discuss recovery strategies to mitigate against learning loss as impacted by the Covid pandemic. For policy makers and educators in Africa, both recovery from learning loss and avoiding the risk of dropping out is a critical challenge. It is not just about schools re-opening and a return to normality after the closures and disruption of the last 18 months, but students need sustained learning support to help them. 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 24 African Countries to discuss learning recovery 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.

During the private break-out sessions of the meeting, officials were encouraged to address the following issues:

Measuring learning loss as the first step towards mitigating its consequences

Remedial instruction and the need for individualised attention to help children get back on track

Implementing of a learner-centred policy using computer-aided instruction to recover from loss of learning

Understanding the effectiveness of remote learning to support the development of digital learning

Incorporating digital technology to teach literacy and numeracy

Incorporating social-emotional learning into pedagogies

Selective use of e-learning technologies and applications to avoid confusion amongst educators



Education technology offers an important and effective way of delivering recovery from learning loss. The effectiveness of remote learning and incorporating digital technology to teach literacy and numeracy cannot be understated. As a result of the Covid pandemic and remote teaching, many teachers have reported improved technology skills, although the degree to which this is true across Africa is not yet fully known. Prior to the pandemic, many teachers struggled using technology and mastering new digital.

1.2 Executive Summary

The Covid Pandemic has greatly impacted education all over the world. At the height of pandemic school lockdowns, 43% of the world's students lacked home internet access at a time when digitally based learning was vital to ensuring the continuity of education. ICT for education offers an important and effective way of delivering recovery from learning loss and mitigating against the risk of students dropping out. It is necessary to measure learning loss to devise remedial policies and actions.

Our opening speakers provided a mixed discussion on the disruption caused to schooling and the negative impact on learning. Hon Simai Mohammed Said, Minister of Education & Vocational Training, Zanzibar, Tanzania spoke of how this time is an opportunity to ask deeper questions about the nature of learning. Digital technology is no substitute for the pastoral care that schools provide. The pandemic has shown to everyone the important role of parents in the education ecosystem, especially in terms of early childhood development.

Every African country is faced with the substantial issue of how to effectively adopt and integrate technology into education. Any ICT investments must be done so in terms of sustainable long-term resilience and not just

through the eyes of the current crisis. As we heard from Eng Pascal Gatabazi, Chief Technical Advisor to the Minister of Education, Rwanda, a key focus now is on teaching and teacher performance – especially the essential need to upskill in the use of ICTs and digital technologies.

Juan Baron, Senior Economist & Lead for Adaptive Learning, at the World Bank spoke of the potential to increase student learning through adaptive individualised instruction. Any technology that fails to support the teacher is more likely to fail or not fully exploit the opportunity to accelerate even further gains that education technology can bring. The challenge for policy makers and ministries of education is the question of implementation and the huge choice of technologies on offer. A key message for all ministries is having clear policies on ICT for education. These include policies on the deployment of software and hardware, maintenance and upgrading, data privacy and the choice of devices.

Any ICT for education policy framework must account for several demands on existing systems: access to infrastructure, an understanding of the challenges associated with ICT for education, policy makers and ministries of education need to be as savvy as the companies selling their digital solutions, teachers must understand the concept and purpose of the educational software they are applying in the classroom or online, and students need mentoring to develop the right behavioural skills.

Moving forward, the following are a suggestion of some key principles that may help with policy-making to accelerate the recovering from learning loss. Firstly, it is essential to gather a clear picture of the impact of the pandemic on education from the widest possible group of stakeholders. Measuring learning loss will be as much qualitative as quantitative, so we need perspectives from all groups, particularly those who are hardest to reach. Secondly, it is necessary to understand the impact of recovery solutions that have already been put in place. A lot of these interventions were created and designed at a very fast pace without mechanisms for assessing their effectiveness. Thirdly, we need to design solutions based on recent experiences. Recovery solutions must be directly informed by a thorough understanding of the immediate context and where policy can have the most impact on improving learning outcomes.

The disruption to education caused by the Covid pandemic has highlighted key systemic challenges faced by educators in Africa:

Transitioning to online learning at scale is a very difficult and highly complex undertaking for education systems. Providing sufficient infrastructure is often seen as the primary hurdle to be overcome. While infrastructure is certainly important, and expensive, much greater challenges relate to supporting teachers so that they can in turn support learners in a new learning environment.

Good schools, in good education systems, will do best. Students and teachers in schools that are under-resourced or in poor communities are less able to benefit from the digital technologies that can help accelerate recovery.

What is still unknown in many countries is the amount of learning loss due to Covid. Most governments are lacking the metrics and research to calculate how much has been lost and what remedial action is required. To mitigate against learning loss, it has become clear that greater engagement with parents is essential. Accelerating learning by leveraging new technologies in education requires policies that directly touch on teacher professional development, teacher capacity building and with that guide parental engagement.

Regarding recovery from learning loss, the general view is that it cannot be made up in one year; it is probably going to take at least three years to recover the curriculum losses. During such recovery time this will lead to a debate of how much to return to old curricula. In terms of recovery within the education ecosystem, many countries are facing the challenge of those who have left the profession during the worst periods of shutdown. This is not just teaching staff but support staff and school employees who have had to find other work to ensure a secure income.

Everyone agrees that the integration of technology is so important in mitigating against the loss of learning, but the biggest barrier is the ICT infrastructure. That said, there are plenty of interventions that can be implemented quickly such as improving the quality of teaching and having more individualised learning. There is debate around the issue of deployment of technology in education, where one school of thought says do not deploy these technologies in schools until you have trained teachers and another school of thought that says we already have IT support

inside of the classroom, because the very same learners are the ones who are going to show teachers how to use these things.

As the world emerges from the Covid pandemic, we should know more about changes in teacher confidence and their proficiency in using technology. For all the talk of technological investment, the teacher remains at the heart of education and teachers are an existing resource, in place and ready to help with programs that recover learning. The critical challenge experienced during the time of Covid is also the issue of learners in remote areas. In deep rural areas, or in remote areas, there is an issue of connectivity and the availability of content.

In recent months we have certainly seen considerable financial support from multilateral partners and development agencies alongside the local stakeholders who have come together to support their governments and local communities. Equity issues remain a huge challenge and Covid has taught us the necessity of closing digital divide and modifying the “education for all mantra” to “equal education for all”.

1.3 Format of Video Conference and this Report

In section 1.4 we list the one hundred and eleven participants of this video meeting on learning recovery. The most immediate lesson of online video



conferencing is to ensure that every participant has a voice. Small groups are essential. So, after opening statements the event was broken into small groups each with a moderator to take notes and support the conversation.

Prior to the break-out rooms there were three opening statements from: Hon Simai Mohammed Said, Minister of Education & Vocational Training, Zanzibar, Tanzania; Eng Pascal Gatabazi, Chief Technical Advisor to the Minister of Education, Rwanda; and Juan Baron, Senior Economist & Lead for Adaptive Learning, the World Bank. 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 Simai Mohammed Said, Eng Pascal Gatabazi and Juan Baron.

Part B: Twelve 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 was provided by Richard Marett, CEO of Whizz Education.

The total time of the video meeting was 115 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 disseminated report that flows as follows:

- I. Learning Loss – Measurement and Mitigation**
- II. Accelerating Recovery and Embedding Resilience**
- III. ICT Integration, EdTech and Self-Learning**
- IV. Inclusivity, Equity and Teacher Collaboration**

1.4 Participants

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

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

BOTSWANA: Simon Coles, Deputy Permanent Secretary, Ministry of Basic Education

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

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

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

BOTSWANA: Isaac Kgoromola, Systems Analyst - ICT Projects Deployment, Ministry of Basic Education

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

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

CAMEROON: Dr Pierre Celestine Taptue, National Institute for Training of Trainers and Curriculum, Ministry of Employment & Vocational Training

CANADA: Ragini Kashyap, Program Design Consultant, Whizz Education. *Moderator*

COTE D'IVOIRE: Sylvie Tanflotien, Consultant at the Ministry Integrating Technology in Education, Ministry of National Education, Technical Education and Vocational Training

DEMOCRATIC REPUBLIC OF CONGO: Jacob Tshizubu, DRC Country Head, Whizz Education. *Moderator*

DEMOCRATIC REPUBLIC OF CONGO: Eric Selemani, DRC Project Manager, Whizz Education. *Moderator*

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

GHANA: Benjamin K Gyasi, Chief Director, Ministry of Education

GHANA: Rejoice Dankwah, Director for Technical Vocational Education & Training, Ministry of Education

GHANA: Afua Ansre, Advisor; Gender, Inclusion and Safeguarding, Ministry of Education

GHANA: Florence Asmah, National Education Reforms Secretariat, Ministry of Education

GHANA: Kojo Andrew Adu ICT & Resource Mobilisation Office, Pre-Tertiary Directorate, Ministry of Education

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

GHANA: Eric Ofori, Director, New Horizon Foundation

HUNGARY: Adam Collis, Global Online Learning Alliance. *Moderator*

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

KENYA: Joshua Opondo, Infrastructure Projects Lead, ICT Authority, Ministry of ICT and Innovation

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

KENYA: Mutheu Kasanga, National Chair (KEPSA) & Deputy Vice Chancellor (Lukenya University), Kenya Private Schools Association

KENYA: Jane Mwangi, Chief Executive Officer, Kenya Association of International Schools

KENYA: Suraj Shah, Lead, Regional Centre for Innovative Teaching and Learning, MasterCard Foundation

KENYA: Richard Marett, Chief Executive Officer, Whizz Education. *Moderator & Closing Speaker*

KENYA: Wangeci Thuo, Kenya Country Head, Whizz Education. *Moderator*

KENYA: Zach Mbasu, Education Advisor, Whizz Education. *Moderator*

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

LIBERIA: Alex Mbolonda, Director for Planning, Monitoring and Evaluation, 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: Noriah Nchingula, Acting 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

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

NAMIBIA: Robert M Munganda, Chief Education Officer: Broad Curriculum and Curriculum Management (NIED), Ministry of Education, Arts & Culture

NAMIBIA: Deo Mupopiwa, Senior Education Officer, Ministry of Education, Arts & Culture

NAMIBIA: Claudia Maritshane, Senior Education Officer (NIED), Ministry of Education, Arts & Culture

NAMIBIA: Eino Haifidi, Senior Education Officer, Directorate of Programmes and Quality Assurance, Ministry of Education, Arts & Culture

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

NAMIBIA: Paulina Hamukonda, Education Officer, Junior Primary Phase, Oshana Region, Ministry of Education, Arts & Culture

NIGER: Salim Mokaddem, Special Advisor to the President, Head of the Education Unit of the Presidency, Office of the President

NIGERIA: Dr Grace Ajagun, Director of Education and Curriculum Policies and Programmes, Nigerian Educational Research and Development Council (NERDC)

NIGERIA: Dr Chima Jonas, Policy and Programmes Directorate, Nigerian Educational Research and Development Council (NERDC)

NIGERIA, LAGOS STATE: Iyabo M. Seriki-Bello, Director, Ministry of Wealth Creation & Employment

NIGERIA, OGUN STATE: Paul Obah, Vice Principal Academics, Corona Schools

NIGERIA, OGUN STATE: Adeyemi Opeyemi, Head, Junior School, Corona Schools

NIGERIA, OGUN STATE: Alo Oladapo, Head, Mathematics Department (Senior School), Corona Schools

NIGERIA, OGUN STATE: Sunday Ossai, Head of Department, Mathematics (Junior School), Corona Schools

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

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

RWANDA: Eng Pascal Gatabazi, Chief Technical Advisor to the Minister, Ministry of Education. *Opening Speaker*

RWANDA: Rose Baguma, Director General - Policy Analysis, Ministry of Education

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

SENEGAL: Christophe Rhein, Digital Advisor in Charge of Change Management, Ministry of National Education

SENEGAL: Maïmouna Soudé Souare, Elementary School Inspector, Education Planning and Reform Direction, Monitoring and Evaluation Division, Ministry of National Education

SEYCHELLES: Xavier Estico, Chief Executive Officer, National Institute for Science, Technology & Innovation

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

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

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

SOMALIA: Abdulaziz Nur Mohamed, Director of TVET and non-formal Education, Ministry of Education, Culture and Higher Education

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

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

SOUTH AFRICA: Heyner Alberto Osorio Lara, Deputy Director for MST, Curriculum Innovation and eLearning, Ministry of Basic Education

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

SOUTH AFRICA GAUTENG: Dr Slindo Shamase, Chief of Programmes and Institutional Strategy Development - Matthew Goniwe School of Leadership and Governance, Department of Education

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

SOUTH AFRICA GAUTENG: Ditshwane Mogowe, Chief Education Specialist, Department of Education

SOUTH AFRICA GAUTENG: Keith Magagane, Senior Education Specialist, Department of Education

SOUTH AFRICA GAUTENG: Antoinette Nicolaai, Provincial Curriculum Director, Department of Education

SOUTH AFRICA GAUTENG: Phathumusa Mdladla, FET Mathematics Programmes Officer, Department of Education

SOUTH AFRICA GAUTENG: Mmapula Mokakabje, Senior Education Specialist, Tshwane South District, Department of Education

SOUTH AFRICA GAUTENG: Cynthia Hlope, Education Subject Specialist, Tshwane District, Department of Education

SOUTH AFRICA GAUTENG: Pinky Busika, Teacher, Department of Education

SOUTH AFRICA GAUTENG: Sharitha Kalidheen, Subject Advisor, Department of Education

SOUTH AFRICA, MPUMALANGA PROVINCE: Philile Mbatha, Director for Inclusive Education, Department of Education

SOUTH AFRICA, MPUMALANGA PROVINCE: Dr Dina Mosia, Deputy Chief Education Specialist in Curriculum, Department of Education

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

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

SOUTH AFRICA WESTERN CAPE: Christelle Barkhuizen, Chief Education Specialist Capacity Building and Implementation, Department of Education

SOUTH AFRICA WESTERN CAPE: Anita van Vuuren, Deputy Chief Education Specialist: e-Learning Capacity Building, Department of Education

SOUTH AFRICA WESTERN CAPE: Esethu Stofile, Deputy Chief Education Specialist: E-curriculum Projects Coordinator, Department of Education

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

TANZANIA, ZANZIBAR: Hon Simai Mohammed Said, Minister, Ministry of Education and Vocational Training. *Opening Speaker*

TANZANIA, ZANZIBAR: Khamis Said, Deputy Permanent Secretary, Ministry of Education and Vocational Training

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

UGANDA: Dr Jane Egau Okou, Commissioner for Teacher Education & Instruction, Director for Higher Education & TVET, Ministry of Education and Sports

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

UGANDA: Bernadette Nambi, Deputy Director, National Curriculum Development Centre, Ministry of Education and Sports

UGANDA: Joseph Kajumba, Principal Inspector, Ministry of Education and Sports

USA: Juan Baron, Senior Economist & Lead for Adaptive Learning, The World Bank. *Opening Speaker*

USA: Paul Miller, US Country Manager, Whizz Education. *Moderator*

UNITED KINGDOM: Svetlana Tarassova, Director of Global Strategic Partnerships, Whizz Education. *Moderator*

UNITED KINGDOM: Ray Douse, Compliance Director, Whizz Education. *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: Dr Beatrice Botha, Education Controlling Officer, Ministry of General Education

ZAMBIA: Tshiya Charlotte MPenge, Senior Officer - ICT Policy & Regulations, SMART Zambia, Office of the President

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

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



DISCUSSIONS

SECTION 2.

Discussion

2.1 Opening Statements

The opening statements were provided by Hon Simai Mohammed Said, Minister of Education & Vocational Training, Zanzibar, Tanzania; Eng Pascal Gatabazi, Chief Technical Advisor to the Minister of Education, Rwanda; and Juan Baron, Senior Economist & Lead for Adaptive Learning, the World Bank

Hon Simai Mohammed Said

The Minister referred to how the disruption caused to schooling by the Covid pandemic, like elsewhere in the world, had obvious negative impact on learning. Firstly, the ministry put the necessary mechanisms in place for school re-openings, and after an assessment of different scenarios put into place a strategy with the support of UNICEF. These included the use of radio and TV educational programs, though the full benefits of the internet could not be realised for those children who lacked the connectivity.

The period allowed officials at the Ministry of Education and Vocational Training to ask deeper questions about the nature of learning. Digital technologies are no substitute for the pastoral care of the school and the necessary interaction between teachers and learners. They tried to transform educational content to online but encountered difficulties in converting pedagogies to a virtual format. Human action lies at the heart of education. The need to train and upskill teacher capabilities throughout the process is critical. So, teacher support must also lie at the heart of education.

The Ministry conducted online teacher training, especially in the use of ICTs and new technologies. Such activities can contribute to professional development, but it has political implications for the future. The biggest development in education is certainly the rise of online learning and the Covid pandemic showed us all the important role of parents in providing a conducive learning environment at home and encouraging their children to complete homework tasks.

The biggest challenge in Zanzibar is that there are not enough devices for the learners. Even the provision of content on TV channels does not benefit



every learner, especially in some rural areas where they can not always get a robust signal. So, the Ministry of Education and Vocational Training had to print learning materials and have them delivered to the most remote areas of the country. They did manage to boost access for educational programs on TV and distribute more radios amongst villages.

Going forward, the foundational principle is that now is the time for people to come together and share the common cause with non-bias integrity for the good of the educational system. Of course, nobody was prepared for the pandemic, and now we must make quick decisions in ensuring the continuity of learning while being cognisant of the fact that it is impossible to determine how long the pandemic is going to impinge on our lives. Hence, we have two options:

The first option is to review the current curriculum, with the objective of having a far more learner-centred approach with emphasis on continuous assessment, including a technological component and digital literacy for all. The second option is to continue with the existing content-based education which puts emphasis on summative evaluation. Such decisions for policy makers are dependent on the state of the ICT infrastructure. In Africa there has long been talk of more e-learning, but the integration has not happened and countries across the continent are not prepared for prolonged school closures. This is a wake-up call for us all to have a clear policy and strategy for online learning.

The biggest issue now is how to adopt technology to any African country, which means investment and having a policy on ICT. The Ministry of Education and Vocational Training has now developed such a policy for education. Any such investment should not just be seen through the eyes of the current crisis but determined by long-term sustainable thinking about the delivery of education and mitigation against

future disruptions. This includes a change of mindset that breaks down any resistance to remote learning and ICT for education. Our future planning for online learning should start with the assumption of worst-case scenarios along with taking stock of where we are with infrastructure and human resources. We do not know when this pandemic will end, so we need to prepare ourselves now.

Eng Pascal Gatabazi

The fundamental value of education lies in people's capacity to reach their full potential, to play a leading role in the social and economic transformation of their societies. In Rwanda, we achieved the Millennium Development Goals of universal primary education, with enrolment now at 98%. But the education sector has faced huge challenges since the onset of the Covid pandemic. In the first quarter of 2020, schools were closed to mitigate against further spread of the virus. This was just a few months into the first semester of primary and secondary schools, while the tertiary sector was in its second semester.

The Government of Rwanda has its education sector plan in response to the pandemic and schools started re-opening for physical activities from October 2020. This was done in steps depending on the level, starting with universities and then general education in November. All levels of schooling, including pre-primary had returned by January 2021, which necessitate a "back-to-school" campaign to sensitise parents in bringing their children back.

The deployment of remote learning in Rwanda, like other African countries, utilising TV and radio while putting more investment into the Ministry of Education's online learning platform. More than 3,000 lessons were recorded and broadcasted on radio and TV between April and December 2020. The online learning platform was zero-rated for education, thanks to a partnership with the telecommunications companies. Now onto the strategies for learning recovery.

The first area of intervention for the Government of Rwanda was to measure the learning loss. Then came the enforcement of the back-to-school campaign to ensure no child is left behind. This was particularly robust to ensure no dropouts especially amongst girls and the most vulnerable. The Rwanda Education Board had roll-out its remedial and catch-up education program from October 2020. The key objective was to provide the foundational skills to those learners who lagged their peers in school. This remedial program continues in 2021 and a year on from the school re-openings the Ministry of Education has a further developed program

to identify those students with learning difficulties and implement remedial support for them. The commitment is to continue to eliminate all barriers to learning.

Another key focus of the Ministry of Education is on teaching and teacher performance – especially the essential need to upskill in the use of ICTs and digital technologies. The government wishes to strengthen the use of ICTs in teaching and learning. Furthermore, they have found it necessary to improve enrolment at the pre-primary level as this is where the foundational learning takes place.

Also, we cannot forget the importance of good governance and robust school leadership. One can always see good results where a school is well-governed. Last but not least is the necessity to build resilience into the system. Part of that means properly documenting and assessing the true impact of the Covid pandemic on education such that we have evidence-based research that informs future decision making and practices.

For the use of ICTs and digital technologies in education, we need to leverage the existing remote learning platform in Rwanda and embark on the complete establishment of a national multimedia studio for developing educational content. Such a platform must be accessible for all and hence we cannot relax in making sure that the infrastructure is in place such that no student is left behind simply because of connectivity.

Juan Baron

The opening statement of Juan Baron is in conjunction with the presentation "Technology to Support Adaptive Individualised Instruction" as per appendix A.

The focus of this presentation is "adaptive individualised instruction", and the technology behind it. This approach has the potential to increase student learning as has been seen in those countries that have implemented it. Primarily the purpose of such instruction is the support the job of the teacher to solve the real problems they face in the classroom – and not just technology for the sake of it.

We know, during the Covid pandemic, that the damage to education has been highest in rural areas where connectivity is lower. We also know that the most important factor contributing to student achievement is the quality of instruction. So, any technology that fails to support the teacher is more likely to fail or not fully exploit the opportunity to accelerate even further gains that education technology can bring. The most effective

interventions are those that focus on the quality of instruction in the classroom or at home, or both. Individual student learning is the most effective in producing tangible results.

In the past, we may have failed a little bit when trying to give the same training to every teacher when we know there is a lot of heterogeneity. There are differences in cohorts of teachers and especially in the cohorts of students because of their differing needs. From a technological point of view, we need to recognise that teaching in developing countries is extremely complex. Here we have the highest student-teacher ratios, and they may not have all the necessary support and continuous professional development that they deserve. Equally the teacher must adapt to a complex, changing curriculum in this crowded space.

In Africa, the World Bank has seen interesting political interventions that use adaptive instruction, with or without software, that have demonstrated being up to four times more effective. So how does technology enter the picture of individualised instruction? E-learning technologies can support teachers in adapting their instruction to match the different levels of students in different ways. As ICTs can be utilised to support the teacher then we can meet the needs of students at the right level. This is something that is hard to do in the classroom when student-teacher ratios are high.

Examples of implementing adaptive individualised instruction can be seen in the Dominican Republic and India (as per slide 5 on the presentation in Appendix A). In the Dominican Republic, we have about 6,000 students on an eight-week program – the horizontal axis showing the number of hours the students used the adaptive learning platform. The vertical axis shows the national mathematics examination that is unrelated to the platform. The graph shows a positive correlation between more use of the adaptive learning platform and performance in the standardised assessment. In India the adaptive individualised instruction was used as part of an after-school program and clearly positive results can be seen after intervention. Such results have not been seen with other interventions.

The challenge for policy makers and ministries of education is the question of implementation. Today officials are confronted with a plethora of providers who say their technology is going to solve all the problems. For example, just buying software licences is not enough; we need to ensure that students use the technology and that it improved learning can be attributed to such new edtech.

A key message for all ministries is having clear policies on ICT for education. These include policies on the deployment of software and hardware, maintenance and upgrading, data privacy and the choice of devices. In the past the World Bank may have been a bit sceptical on devices because there simply was not the evidence. But that rationale has changed, and we are seeing that by matching the right device with the right software there is a genuine impact on the quality of education. Any such e-learning technology must be aligned with the curriculum and above all it needs to be simple. Some edtech software has so many 'bells and whistles' that when you put it in front of the teacher they are completely lost. Most importantly we need to ensure that it really is adaptive.

As well as the necessary infrastructure (connectivity and electricity) it is critical to have a clear program that brings school principals, teachers, and students on board. Any education technology solution must also be scalable. We know every country has budgetary challenges when investing in new technology for education, especially now more than ever, so policy makers need to properly define the spending priorities. We need to have solutions that are delivering learning.

Finally, it is critical to be able measure the impact on learning. Such measurement may then determine when further instruction is required, whether it be after-school programs or during school hours. Either way it changes the dynamic of the classroom. Using technology to support adaptive individualised instruction has enormous potential. So clearly just "off-the-shelf" technology solutions are not enough to meet the necessary adaptations. Policy makers need to be wary of technology providers who may have never worked with public school systems and do not really know integrate their edtech into complex schooling environments. Given the varying degrees of teacher digital skills, then we need simple solutions with low implementation capacity. A product that is too sophisticated is simply not going to be used.

Every IT solution that we start putting into schools is going to gather a lot of data. What are going to do with that data? Can it be used to improve pedagogical practices? How are we going to provide the necessary feedback mechanisms to teachers so that they can distinguish the different levels between student A and B? These are essential questions for ministries of education and the World Bank is committed to supporting governments and providing the best evidence-based research on the effectiveness of adaptive individualised instruction.

2.2 Learning Loss – Measurement and Mitigation

What is still unknown in many countries is the amount of learning loss due to Covid. Most governments are lacking the metrics and research to calculate how much has been lost and what remedial action is required. There is a sense that governments responded quickly to the consequences of school closures with the delivery of content but as schools have re-opened, the issue of learning loss has not received the attention it deserves. Much of the discussions in schools has become operational, how to adjust timetables, how to organise classrooms and schooling. Only now are we seeing ideas around accelerating learning recovery such as suggestions to reduce centralisation and encourage school leaders to come up with local solutions, with local stakeholders, that account for loss of learning.

Statisticians and educational researchers in South Africa have made calculations that predict the equivalent of about one academic year being lost. A short to medium-term framework is being established for learning recovery and the first requirement is to precisely measure learning loss. During 2020 the emphasis was on tracking curriculum coverage. Establishing learning losses from a conceptual point of view is more difficult because it varies from school to school so much. Now the multiple stakeholders across all levels of education need to come up with a common framework based on their experiences to produce a plan for learning recovery. This could be an opportune moment to look at some fundamentals in the curriculum and bring in new innovative pedagogies. Any reform of the traditional summative based system would be a big cultural shift in South Africa and although there may be inevitable change in the future, many would like to see evidence of success in other countries when implementing different forms of assessment.

To mitigate against learning loss, it has become clear that greater engagement with parents is essential. The challenge of connectivity in rural areas has meant most ministries and school districts producing printed learning packs for home-schooling. People have found that just sending packs to homes (or to be picked up at local schools) failed to fully engage learners because at home there are many other social issues. So it is necessary to make sure the parents are also sent a timetable of learning, guidelines, and instructions on the course material and where possible have parent meetings to offer advice on how to assist learners at home. Where there are rotating school schedules, such as in South Africa, the teachers will teach on the days the

pupils are at school and then provide them with exercises to complete at home for those days they are not attending the school campus.

In terms of providing the diagnostics and having the data to measure ongoing learning criteria, a robust and well-managed digital platform can provide a great deal of useful information. They have found this in Gauteng Province in South Africa where the digitisation of the education system has been going on since they first piloted e-learning in 2015 and then moved to the “Classrooms of the Future” project. The platform allows learners to complete exercises and receive grades, then providing a diagnostic report that the teachers can use to see where additional support or remediation for the learner is required. It is natural that a lot of focus has been on the exit grades and that is why grade 12 does not rotate. The medium to long-term concern is those in the primary school sector where much more pastoral care is required, young kids need constant attention, and potentially there could be the biggest learning losses.

When utilising education technology to measure progress in learning and potential losses, it is important that the data is used. The loop needs to be closed in that the teachers must remediate. If that does not happen then the diagnostic process is of no use. This is critical no matter what the digital resource – as is the role of parents. With a rotating school timetable there is more onus on students learning at home and that means an expectation that the parents are helping. This is not always the case, depending on the community, the background, the social context, and work-life of the parents. Parents are simply not always able to be teaching assistants.

As raised by Minister Said from Zanzibar in his opening comments, the issue of pastoral care during the closures caused by Covid, resonated with many participants in the meeting. In Namibia, they have made sure that training teachers in ICT is a priority, otherwise the deployment of education technology will be accompanied by too many mistakes. The issue



of assessment is a challenge, though to measure the learning loss they have implemented 'diagnostic testing' to assess where the learning gaps are and what needs to be done to recover. In the country like large parts of Africa, the mobile network is still predominantly 2G and 3G, whereas 4G is really needed for the proper downloading of educational materials.

In Ghana the recovery from shutting down schools has involved close cooperation and support from multilateral agencies like UNICEF, USAID, and other international NGOs. The question was always how to best engage both teachers and students with interventions that included radio and TV with online e-learning available for those students who had examinations. In terms of mitigating against loss of learning it also meant the ministry of education producing printed materials and worksheets, then leveraging local communities to ensure parents were supported with home learning. Even with the return to schools, they have continued with the radio educational programming given its success along with television. Hence, the government has decided to keep the dedicated learning channel on TV and inculcate the content in schools.

The Nigerian Educational Research and Development Council instigated several activities during the pandemic to mitigate against loss of learning. The radio and TV programs implemented at national and state level have also been supported by an increase in investment into the e-learning program at the basic education level. The full roll-out is dependent on completion of content which requires the most time and resources to get right.

Kenya closed their educational institutions from March to October 2020, with about 350 re-opening initially and then the entire education system fully open again in January 2021. Drop-outs were a concern, and this was noticeable amongst older girls. In a country on the equator, with no change in the length of days, they have been able to adapt the length of term and holiday times to make up for learning losses. The expectation is that by 2022, they will have caught up and in 2023 everyone will be exactly where they are supposed to be, educationally. This is all part of building greater resilience into the Kenyan education system.

In Senegal, they have managed to measure the impact of the pandemic on learning loss by making historical comparison to previous measurements of student averages, learning abilities and capacities. In terms of recovery, several projects have been set up and implemented utilising technologies for learning and training teachers in the use of ICTs.

The government has supplied devices to students, though the effect of this depends on implementation at the school level – pointing to the importance of principals being key to supporting teachers.

Nigeria has noted considerable regional variance in children who have suffered the most learning loss due to the crisis. The North Eastern part of the country seems the hardest hit, but as well as Covid there have been other regional economic factors. They have tried to mitigate the problem in two ways. Firstly, by developing a condensed curriculum to allow students to catch up; and secondly by employing several remote learning strategies using radio, TV, and online learning programs. The latter has been introduced by individual States and plans to roll-out a national online learning program are far more substantial. Work is ongoing in developing content for such a nationwide project and of course more investment will be needed in the ICT infrastructure.

Many countries have regional variations because of the time it takes for central government to gather and disseminate data, and then formulate national policy. So for example in Zambia, some regions like rural areas in the east of the country have been using community reading centres bringing together clusters of villages. Parents have also helped by extending the activities in community centres to the home, such as having a room for reading and mathematics.

A crucial matter for education providers and policy makers is concerning the fact that students will be moving up an age group into a higher grade in newly rescheduled academic years but have not fulfilled all the learning requirements of their current year due to learning loss. How will learners cope with the demands of a higher grade while having missed out on some key foundational work? Students, for the most part, will be adept at adjusting so the real pressure comes to bear on policy makers who need to look at their assessment system in a manner that accounts for the loss of learning caused by the pandemic.

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

A country like Botswana has had a national ICT policy since 2007, laying the ground for the future of education by making provision for connectivity in schools and availability of devices for students. The biggest challenge has been implementation which has suffered delays and the impact of Covid has been like starting afresh. The conventional system already had strong use of radio and TV programming for education which provided a stepping stone going forward. The policy now has been to strengthen the ICT component, particularly within basic education. The strategy now has been to accelerate broadband connectivity to all schools. They calculated that around 33 days of learning was lost, hence only a month in 2020. In 2021 they have only lost 14 days of teaching and learning. The junior and senior secondary schools all completed their exams and posted the best results. Possibly, the Covid pandemic brought more parents on board, and this has helped to uplift the standard of education across communities. They took responsibility to assist the government and the schools in ensuring loss of learning was minimised.

2.3 Accelerating Recovery and Embedding Resilience

Accelerating learning by leveraging new technologies in education requires policies that directly touch on teacher professional development, teacher capacity building and with that guide parental engagement. What are we accelerating? Parents have a role to play, because policy implementation means giving guidelines on the civic use of technology. This includes important considerations around ethics, safeguarding learners online, cybersecurity and cyberbullying, along with accounting for how many hours should be spent online for learning.

Regarding recovery from learning loss, the general view is that it cannot be made up in one year; it is probably going to take at least three years to recover the curriculum losses. During such recovery time this will lead to a debate of how much to return to old curricula, which some view as being already overloaded and biased around just knowledge content. The impetus is certainly with modernising curricula and if implemented then assessment will surely follow – particularly the change of emphasis from high pressure end of year exams to project-based evaluation.

In terms of recovery within the education ecosystem, many countries are facing the challenge of those who have left the profession during the worst periods of shutdown. This is not just teaching staff but support staff and school employees who have had to find other work to ensure a secure income. In Namibia

they have lost people crucial people in key positions in schools and the whole issue of re-building capacity in the coming years is going to be at the top of the agenda for ministries of education across Africa. They were hoping to return full scale this year but unfortunately they have had no choice but to be more cautious with re-openings during the winter period when the spread of Covid is most prevalent. They have had a long winter holiday from the beginning of June until August and the normal three semester format is being reduced to two main terms. It is too early to have the data that gives a picture of how this will impact learning across the grades.

With many curricula being adjusted in response to the impact of the pandemic, some participants spoke of the need to pause for thought when reviewing curriculum. What if there is another pandemic in a few years from now? Will it mean more curriculum adjustments? The answer lies in a systemic approach that empowers the teachers to deliver their lessons and any reform of basic curricula should be in the context of the entire education system which is producing young people with the skills and competencies in line with a sustainable national strategy.

In Rwanda, their program for learning recovery and the back to school campaign involved a full remedial education program and a tailor-made strategy focusing on teachers, particularly the necessary skills required in the use of ICTs. In the classroom, they have been implementing more individualised learning with particular attention paid to slower learners. It remains that online assessment is a challenge and like everywhere else in the world we are some way off having robust enough technology for continuous assessment in line with national curricula and local variations in pedagogy.

Liberia has had a particularly tough time with the Ebola crisis in 2013/14 and then the Covid pandemic hitting the education sector hard. 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. 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. 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.



In Gauteng Province, South Africa they started to plan more aggressively for secondary schools, because the educators understand and can use education technologies. This may involve adjustment of annual teaching plans so they can be sure to cover the critical areas in which students are assessed and preparing them for the next level, which may be post-school education. The core responsibility is to train the educators in understanding the use of ICTs and closing gaps in the application of technology to help with learning.

Kenya, of course, has already invested heavily in its Digital Literacy Program, with huge infrastructure changes ensuring the connectivity of 28,000 schools and the procurement of devices for students. The onset of the pandemic meant further upscaling the provision of devices. They have been able to put regular lessons and television lessons on the Kenya Education Cloud to ensure continuous access and allowing asynchronous learning. The teacher is critical, so the ministry of education has uploaded lessons and modules for teachers onto the education cloud for them to access from any device, including mobile phones. They still have some way to go, but Kenya has made progress and steps forward in utilising technology to recover education.

Osun State in Nigeria created an e-learning platform for students to download resources, with decentralised data such that all schools can upload teacher content for different subjects. You may have six mathematics teachers in six different schools recording the same topic with six different ways of presentation. They have found how students get emotionally attached to certain teachers and the first obstacle to cross is getting used to who is teaching you.

Nigeria has seen a return to full schooling since the worst of the pandemic with the wearing of face masks becoming part of the school uniform. Face masks are compulsory for students and teachers alike the moment they arrive at the school gates. This routine has contributed to reducing the danger of any large scale loss of learning and there has been no change in the curriculum. In Nigeria they have a spiral curriculum where is an iterative revisiting of topics, subjects, or themes throughout the grades. First, there is basic knowledge of a subject, then more sophistication is added, reinforcing principles that were first discussed. This format of repeating concepts has allowed for fast tracking and compressing certain aspects with students able to catch up doing homework.

Malawi has around 7.7 million learners. At the primary level they switched to interactive radio instruction lessons for learners at home when the pandemic hit. They already had digitalised the curriculum for post junior secondary and agreed zero-rating of educational content with the network operators. Yet there remain large groups of people in the country who cannot access the internet. The government is now committed to distance and e-learning, championing the creation of an enabling environment so that the country has a far more resilient education system.

The education ecosystem in Somalia is a special case, given the long-term effects of prolonged civil conflict and that lack of resources with so much money spent on security. For the last 30 years they have not had a proper teacher training infrastructure and many older trainers have now left the system. The government is now turning to new investment whereby so many areas of the education system need strengthening: the training of staff as well as teachers, of new curriculum developers and the training of those underpinning the support infrastructure – district education officers and quality assurance officers.

Cameroon has several ministries with oversight of the different education levels and the ministers have been strict on the Covid health measures including compulsory wearing of face masks, social distancing, and stringent sanitisation rules. They have reduced the number of students in a class to a maximum of 60 and since the re-openings at the beginning of September 2021 they have not had a single case of infection of the virus in their schools. Right now the ministries have been pooling their resources to record lessons and have them on devices or installed in the computer labs at schools.

In Senegal they made sure all senior examinations were completed after the closure period from 15 March to 15 June 2020. In fact they had higher

results in this period, probably because the schools were closed for other classes and open only for the exam classes allowing teachers to give more time and attention to those students taking their examinations. They already had ICT as a subject but have had to adapt the curriculum to distance education or online learning.

In South Africa all the grades currently rotate on a 50/50 attendance basis, except for grade 12 who are at school every day. In terms of curriculum losses it could be somewhere between 50 – 60% of the syllabus being lost so what they have done is trimmed the curriculum and put in place a three year recovery plan. Support has focused on teacher training, both in terms of Covid protocol and adopting a blended approach to teacher training. The challenge, as experienced everywhere, is the younger children who are not able to do self-directed learning. At the beginning of 2021 they did baseline assessments to get an idea of where the students were in terms of the curriculum and where the obvious gaps in learning are.

For recovery in South Africa they are using updated ATPs – annual teaching plans – that guide teachers of what needs to be taught. The ATP is divided into weeks, so that teachers know exactly what skills or content to cover every week, based on the challenges faced due to Covid. To ensure the continuity of education and students moving up to the next grade the teachers need to identify content gaps and tabulate them so that the teachers in the next grade can see where the learners are and make the adjustments accordingly. The first couple of weeks are set aside so that students can return to the skills they may have lost from the previous term. This approach speaks to the support a learner needs depending on that time and their learning losses. Equally they must also ensure the teachers are also capacitated with the content that may have been lost.

As well as dealing with recovery from learning loss in Kenya, they have also been rolling out the new competency-based curriculum. So much change in a short period has led to some resistance in certain circles of public schools and the unions. There was always going to be some push back against any change, and the pandemic has accentuated problems and livened up the debate about equitable distribution of new education technologies which are central to the Kenyan Digital Literacy Program. They are still trying to grapple with how to best package technology in a manner that can gain broad consensus, involve parents, and manage the additional cost burdens. Parental engagement is a very big deal for everyone in education in Kenya.

The recovery of education in Kenya has meant barely any school holidays. They just finished a 10 week term, breaking for one week and onto another 10 week term with just one week holiday for Christmas. For two years they will have that. Parental engagement is critical as is school leadership in ensuring that any strategy is properly implemented. It is not easy with teachers having a packed timetable, struggling with changes in the curriculum, kids traumatised and schools still working through the effects of the pandemic. Therefore, prioritising quality education becomes a tricky balance.

2.4 ICT Integration, EdTech and Self-Learning

Everyone agrees that the integration of technology is so important in mitigating against the loss of learning, but the biggest barrier is the ICT infrastructure. That said, there are plenty of interventions that can be implemented quickly such as improving the quality of teaching and having more individualised learning. These are areas in which technology can help, even with offline solutions. So it is important for the policy makers to ask the question where they can introduce technology with the maximum and most immediate impact. The difficulty for governments is the last mile and device acquisition and ownership. Here stronger partnerships with the private sector can help, with the government focussing on the backbone infrastructure. Investors should now be seriously looking at impact investments into Africa's technology ecosystem, freeing up venture capital to support a burgeoning young enterprise culture in many countries.

The internet, like electricity and water, has increasingly become a utility and part of the fabric of everyday life. Without universal internet access, the most marginalised populations – girls, students with disabilities and students in rural areas – suffer both from the lack of access to online resources and a lack of economic opportunities. Although there are offline options for educational technology, at some point all require the internet for initial uploading of software and the downloading of content. Offline solutions have a hard time getting away from the need for the internet. As has been witnessed during the Covid pandemic, lack of internet access is tantamount to lack of access to education itself.

There is debate around issue of deployment of technology in education, where one school of thought says do not deploy these technologies in schools until you have trained teachers and another school of thought that says we already have IT support inside of the classroom, because the very same learners are the ones who are going to show

teachers how to use these things. The youth are born with technology as part of their DNA. In a wider context technology is often a race and this does not sit well with the infrastructure of education systems. Education is not a race and cannot possibly be expected to keep up with technology. Yet while even the most developed countries are still trying to determine best practices and measurable outcomes of integrating technology into education, in Africa countries are lagging in terms of infrastructure and this results in efforts to integrate technology often being a hinderance to recovery of learning loss.

In South Africa they have a keen interest in ICT integration to enhance their mathematics teaching as it is a subject in which they are facing serious challenges in the country. Recent performances in grades eight and nine have seen some gaps widening in maths and urgent attention is needed to bring those students up to an acceptable level. There is a feeling that the students could be given more work and although content is on the platform it has not been fully utilised as a tool by many schools. The challenge of learning loss is quantifying it and contextualising it into the needs of the schools. Furthermore, the loss of learning problem is compounded by potentials drop-outs because of school closures. Recent research in the country has shown that the more kids stay out of school, the less they are likely to remain in the school system.

In Botswana, ICT integration is a commitment of the agenda of the President, HE Mokgweetsi Masisi, and they have a project called SmartBots to drive transformation across the economy, government, and society through several key strategic initiatives and projects. The plan is to connect 500 villages to broadband internet, with 200 completed this year already. They do have connectivity already in all their

secondary schools, but bandwidth is limited, with SmartBots they are looking at 800 Mb/s connecting local government offices, courts, health clinics and schools. The Ministry of Basic Education is also procuring devices for all senior secondary school students.

Botswana managed to keep their academic year running, even with a temporary shutdown, and the performance of students was outstanding. With some very good results it could be that this points the way to more self-directed learning. Because of equity issues they did not rely on students using online learning and accordingly printed workbooks. Currently, classroom learning cannot be replaced by online distance learning because some communities would simply not have access, but with SmartBots the inequity in connectivity will change going forward.

Kenya's response to the Covid pandemic using multiple medium is well documented and interventions have been ongoing, though not regarding the effect on the curriculum. One area has been to review the ICT in education and training policy, as the ministry of education has found that there some issues they want which were not captured in previous ICT strategies. That review was rapid and has already been ratified. The enhanced capacity of the Kenya Education Cloud has strengthened their ability to disseminate and curate digital content. A recent development has been how they can make the best out of community-based learning and produce guidelines on accelerating learning to help students.

The private schooling sector in Kenya was able to pivot quickly to various forms of virtual education but they still experienced loss of learning. The lesson learnt here is that at any virtual learning still requires in-classroom face-to-face learning, especially at the basic education level. Seemingly at the tertiary level there is far less loss when learning online but for basic education there must be regular teacher engagement. Interaction between teacher and student is critical, and more so at younger ages; so for example, just recording lessons and sending them out was not good enough. Using a range of virtual education platforms, they still found loss of learning was there – better retention at senior secondary level but very chaotic at primary level.

In Zambia there has been a strengthening political will to develop ICT for education and provide devices. We have seen an increase the supply of computers to primary and secondary schools and more resources devoted to training teachers in the use of ICTs. During the holiday periods they have had support



from their operating partners to help train teachers in the use of technology.

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 four 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.

In South Africa, they have noticed how even when there are adequate devices in schools, most of them did not have enough content to cover the curriculum topics to at least cater for the learning lost during the most serious period of the pandemic. So an ongoing focus has been content development and condensing that content in a way it is available and accessible for learners using a variety of platforms. Comprehensive curricula that are available in ICT solutions will help but will not substitute the teacher in the classroom.

In the future what was commonly spoken of amongst the officials, was the need to create an ecosystem where students self-learn, and more emphasis is needed on learning to learn along with having more competency-based skills with teachers supporting accordingly. This will be largely age-dependent with far greater self-learning at the higher grades (and tertiary education) compared to the primary years where teacher interaction is an essential day-to-day ingredient of early childhood development. Finally, there remains a critical need to focus on vulnerabilities. We must not lose this group – they could drop out and leave the education system for good. E-learning policies must be cognisant of this by being totally inclusive, ensure equity for girls and have the capacity for special needs students.

Students are more likely to learn with technology than without it, particularly at-risk learners. We know that if students in Africa cannot use technology in the same way as their peers in wealthier countries, they will be left behind both educationally and professionally in their careers. The problems and successes of education technology are rarely due to the technology alone, but more often a result of

political, educational, financial, and human practices. Technology cannot fix bad teaching or modernise outdated curricula.

2.5 Inclusivity, Equity and Teacher Collaboration

As the world emerges from the Covid pandemic, we should know more about changes in teacher confidence and their proficiency in using technology. Teacher capacity using educational technologies in general, and to teach online in particular, will vary across countries. But if effective teaching requires effective technology use, pre-Covid data suggests there is still much work to be done almost everywhere in terms of in-service professional development that will help teachers enjoy the full features and benefits of ICT for education.

For all the talk of technological investment, the teacher remains at the heart of education and teachers are an existing resource, in place and ready to help with programs that recover learning. The administrators in policy making can often get fixated on the cost of devices and e-learning technologies and frustrated when delivering something that just sits on the shelf. When teachers see positive changes because of their actions then their mindsets will change to realise that teaching is not as effective without the appropriate use of ICTs to facilitate student learning. Strong school leadership is essential. Without strong educational leaders who provide both pressure and support to teachers in the use of technology for effective instruction, then the educational applications fail to accelerate improved teaching and learning. The school principal significantly influences conditions for technology adoption and integration.

The critical challenge experienced during the time of Covid is also the issue of learners in remote areas. In deep rural areas, or in remote areas, there is an issue of connectivity and the availability of content. This has meant building partnerships with TV broadcasters whereby learners can access scheduled educational TV programs. This ensures that the governments are as inclusive as possible and do not exclude those learners in remote areas. In Botswana they were in the process of upgrading their local area networks; meaning the system is still underdeveloped in terms of utilising technology and best practices. As well as the infrastructure issues, there remains concern of the social and emotional condition of those within education. The teachers, the lecturers have a lot of anxiety, the learners themselves have a lot of anxiety and the home environment itself may not be very stable. There is strong advocacy for African countries to collectively pool their resources to meet the

challenge of specifying and procuring technologies for education. Many countries are developing e-content and an effort to translate into many of the indigenous languages would help relieve local burdens. Such cooperation between countries could do more than just help recover from loss of learning but leapfrog those who do not take up such cooperative initiatives.

In recent months we have certainly seen considerable financial support from multilateral partners and development agencies alongside the local stakeholders who have come together to support their governments and local communities. Equity issues remain a huge challenge and Covid has taught us the importance of closing the gap, especially between the better connected urban communities and the poorer rural communities. The governments, where possible and with the resources they have available are doing everything in their powers to invest in e-learning and ensure the platforms are in place to both recover from learning loss and build greater resilience into the system.

The issue of teaching capacity is certainly becoming more of a challenge in many sub-Saharan countries. Quality teaching and then the integration of ICTs in teacher training were already issues pre-Covid. In those areas which have had extended lockdowns, many teachers have just simply left the profession out of necessity to find other income. Some teachers say they will not leave but others have spoken how they will not return to the profession given the uncertainty.

Another strategy in Gauteng Province, is for greater collaboration amongst teachers in the planning and preparation of their lessons. This was promulgated by the Minister of Education, in what they now call professional learning committees. This is the coming together of schools in the same area to assist one another. It is proving very helpful because so many dynamics are at play within schools under the Covid-restricted environment. This is what they call the recovery ATP to make up for learning losses incurred over the last year.

In Uganda they developed their first Covid emergency response plan in March 2020 and then had to produce a second plan in June 2021, given the increase of the second wave we have seen in many parts of Africa. To date they are still in lockdown and the knock-on social and economic impacts have been devastating even though the direct health impact of the pandemic has been relatively limited. They are now hoping to open schools again between November this year and January 2022. The ministry of education has been making efforts to produce

materials that are fitting for learning in the home environment by identifying those concepts in the curriculum that can be packaged for use in the home. The toughest challenges are in the rural areas where the lower literacy rates amongst parents means they often have not understood the value of a child sitting in front of a radio and studying. Also those parents are not equipped with the knowledge on how to guide their child in home learning. There have been real concerns about drop-outs, especially amongst girls with UNICEF citing data of a 22.5% increase in pregnancies between March 2020 and June 2021 among girls and women aged 14-24. In time for January's re-opening they will have finished abridging the curriculum to focus on key concepts and competencies with a modular approach. About 40% of Uganda's primary schools and 60% of its secondaries are private institutions, run by individuals, religious organisations, charities, and businesses. Their main source of income is through school fees. When schools closed, parents stopped paying, income dried up and most schools had to reduce or stop paying teachers' salaries. Teacher retention is now a major concern in Uganda.

In Ghana they have a very mixed education with both public and private schools that implemented a new common core curriculum just before the Covid pandemic, and then there are international schools with foreign curricula. In terms of learning loss it seems, anecdotally at least, that those most impacted were the schools in low income communities and private schools that were forced to shut down. When they returned to school in January 2021 there was a noticeable drop in reading abilities because of no direct supervision for the children. Of course, the low income communities have a higher incidence of adult illiteracy so parental support of students from these public schools could not mitigate against the loss of learning. A recent statistic in Ghana is that about 10% of all private schools in the country are now no longer in operation because the impact of the pandemic.

In Namibia there seems to be some anecdotal evidence of the worst consequences of the pandemic being on girls with an increase in pregnancies and drop-outs. They are still awaiting the official statistics for drop-out rates, though the early evidence does point for the need to teach more life skills or life orientation as some call it. Equally in Botswana they do not have the full data but in the ministry have a department that is specifically working to find out how much learning has been lost.

The feedback from many teachers regarding the training programs is that they would like to be equipped with skills and knowledge in developing

materials because of their concern over students who at home are not learning. In fact, some teacher groups have said that the emphasis on digital skills is not so much the priority because these can be learnt over time, but it is the need to produce the necessary materials for students. Several participants referred to the very good response of teachers considering this pandemic whereby they have taken the initiative to use immediately accessible tools such as Zoom, Teams, Google to connect with students. Many have found good use of communication channels such as WhatsApp to reach out to parents and students with updates and plans. Hence, a lot has been done without training and without existing guidelines in place. The challenge now is to build capacity and train teachers online and that needs far more robust ICT infrastructure.

In Niger the schools were not shut down during the pandemic and hence they had very good continuity of their curriculum. More recent challenges for the education system have been much more particular to Niger with troubles in border regions and other related security threats. The country is one of the poorest in the world with 60% of the population under the age of 30. An important part of the development policy has been to make every effort to increase participation of girls in education and deliver on greater gender equality. Connectivity is not good and energy supply is still a problem.

In Namibia they realised the lack of teachers well-equipped in the necessary skills to use computers for teaching. This resulted in a program to train teachers on the use of platforms and the ability to develop online content for the learners. At the primary level it was necessary to use printed materials delivered to schools and made available to parents through the daily newspapers. For secondary level up to grade 12, the syllabus was uploaded onto their platform. Teachers are currently receiving training in the application of this e-learning platform.

In Namibia there seems to be some anecdotal evidence of the worst consequences of the pandemic being on girls with an increase in pregnancies and drop-outs. They are still awaiting the official statistics for drop-out rates, though the early evidence does point for the need to teach more life skills or life orientation as some call it. Equally in Botswana they do not have the full data but in the ministry have a department that is specifically working to find out how much learning has been lost.

If committing to using more technology to recover education, then engaging with parents is essential for policy makers. Current e-content is often not attractive to students and so parents need to spend

more time with their children to teach them the most important skills. What are we going to do about content for grades 1 to 4 if the impact of COVID-19 continues? The content requirements for older students are very different, so policy makers need to differentiate between grades and governments need to give more guidance to the parents.

Several participants pointed to national differences and the need to avoid falling into a “one size fits all”, especially for blended learning policies and curriculum reforms; but all countries will have a new generation of digital learners with new competencies. Teaching and pedagogy is very different with online learning and preparations need to be made accordingly. Even though there may be differences between countries, the post-Covid landscape could well lead to better cross-border collaboration with the sharing of technologies.

2.6 Closing Statement

The closing statement were provided by Richard Marett, CEO of Whizz Education. They have completed a study measuring the impact of Covid on learning in rural Kenya, which is available in Appendix B.

One key takeaway of this meeting are the commonalities across African countries who have all experienced learning loss to varying degrees. Quantifying the learning loss is important. Many countries have adopted a range of different initiatives during the worst of the Covid pandemic. What will be interesting is those that are retained as part of a future strategy once the data and diagnostics have been realised.



The data that we have from measuring the impact of Covid on learning in rural Kenya comes from about 200 communities in four counties. This study used continuous assessment data so that we measure learning levels at any point in time. Unsurprisingly, the worst affected have been those with the least resources. Some other patterns also emerged. Younger children generally had a higher proportion of learning loss than their older counterparts – even though the latter also had measurable learning loss. The reason for this is not entirely clear, likely it is because the discipline of learning has not been embedded at a younger age.

Another important data point from the rural study was that learning loss affected girls slightly more than boys – about the equivalent of seven weeks of learning. Furthermore, over half the pupils experiencing learning loss were at a severe level, equivalent to about 13 months of regression. But over 40% of students retained knowledge and managed to move forward. The reason for this is still uncertain and needs more analysis to understand why this happened.

On taking a snapshot of the collected formative assessment data or diagnostic assessment data on 25,000 pupils, it showed a data point of minus 2.9 for those in under resourced communities. The global averaging being minus 0.5. This is the equivalent of being about two and a half years behind a well-resourced urban school in, say Nairobi for example. Regarding supporting teachers to deploy ICTs, the study found that they did not fear it and in fact had confidence in the deployment of education technologies. Regardless of the conditions they were facing, the quality of the learning experience was that students were being compared to international standards. The important takeaway from the study was that there is a major challenge, so how can we accelerate learning? How can we recover?

In those 200 communities of about 100,000 pupils, we were using adaptive learning technologies. From the baseline, within one year of schooling, the study showed 0.575 years of learning progress using this adaptive approach for numeracy, in primary schools. Once teachers were onboarded and the appropriate infrastructure was put in place (including satellite connectivity), the study showed an immediate improvement in learning outcomes – up from 0.575 years to 0.68.

When deploying these kind of capabilities it helps give advantage to continuous formative assessment. It is built in that one can identify patterns in the

data which can be matched with the on-the-ground context. As stakeholders in education we can pull together data from multiple sources to better design programs. We have never found a single silver bullet but by adapting the platform, adapting the training and development, and adapting the education program design, we can see, over a three year period, incremental improvement in learning progression. We found students who were struggling, improved their learning by the equivalent of as much as a year and a half within the space of one academic year, and that was just with 45-minutes per week of individualised learning.

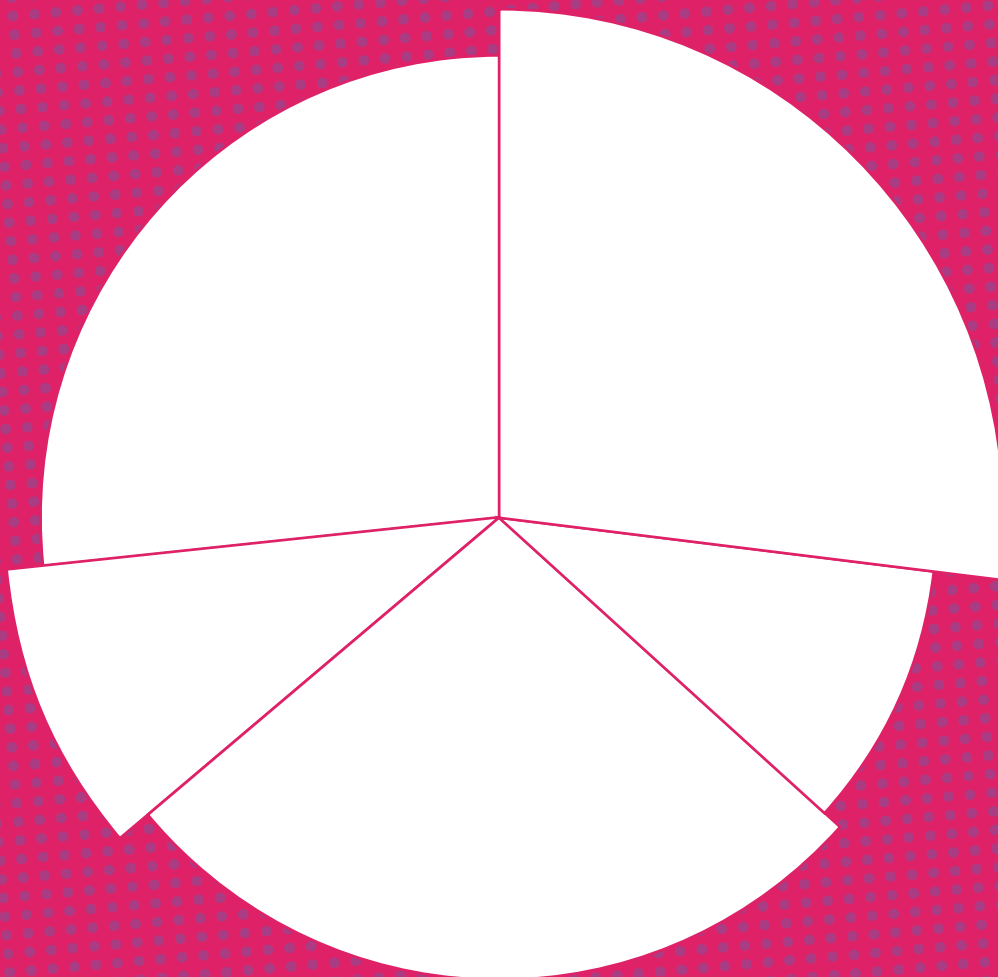
After several years of implementation of such adaptive learning for numeracy there are some key points to consider. We need to own learning recovery. Governments need own their recovery and embed it into education policy. This is not just about short-term recovery but long-term resilience. Quite often we see ICT for education being developed in components and it should be part of a holistic approach to deliver learning outcomes, at scale. These are the lessons we have learnt come from nearly two decades of deploying innovative educational tools, across a range of settings, including low-resource environments.

As Juan Baron of the World Bank stated, adaptive learning has enormous potential. Why? Because it is essentially democratising private tuition for all students. The key is to integrate adaptive learning and align it with national curricula such that scheduling, and teacher training become part of this holistic approach. School principals are also key actors in this. They need to have the confidence to deploy new technologies and support their teachers accordingly.

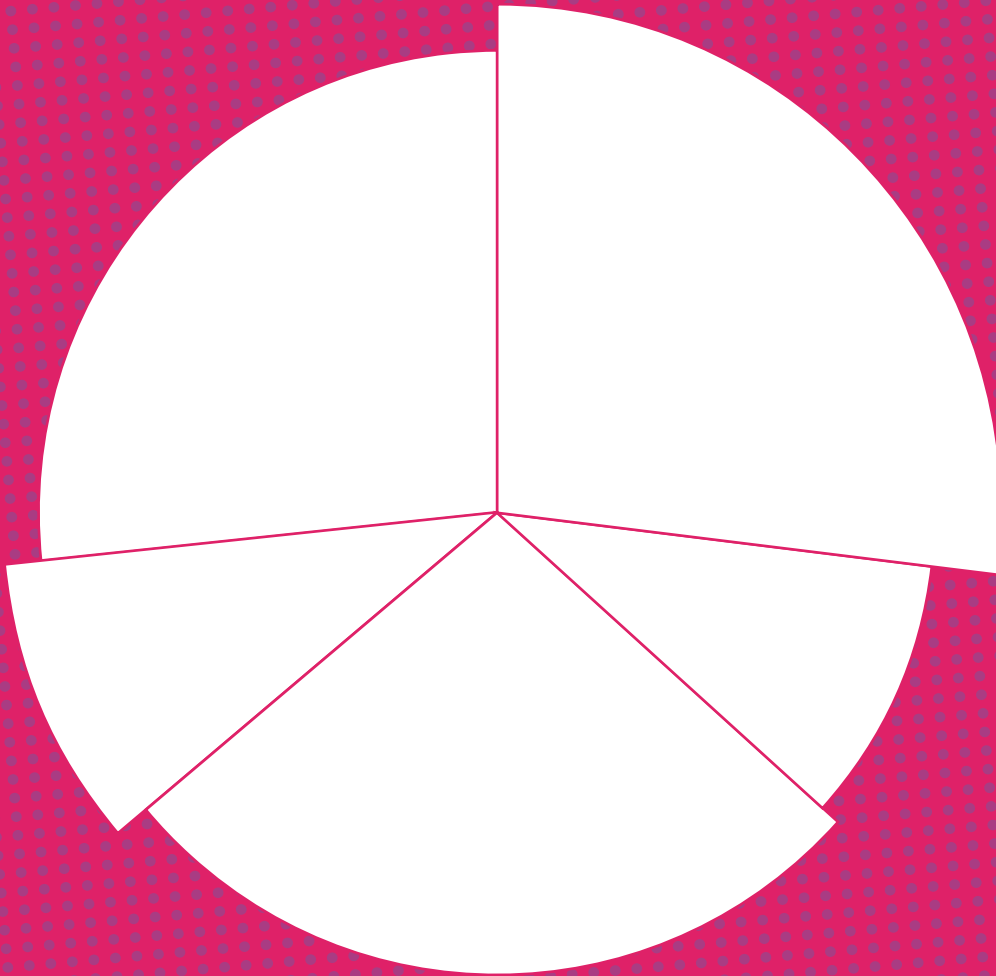
One of the great advantages of deploying student-centred adaptive learning technologies is that you get continuous formative assessment and learning data as a by-product. We see considerable investment being made in assessment platforms and often this is an unfocused allocation of resources. Continuous formative assessment already embedded in the technology offers benefits for both students and education stakeholders. It is more than just deploying a platform; it represents an good opportunity across Africa to leapfrog and develop homegrown expertise.

- End -

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



APPENDICES



APPENDIX A



Technology to Support Adaptive Individualized Instruction

Juan Baron

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September 29, 2021



WORLD BANK GROUP
Education Global Practice

Pedagogical situation – Context

- Learning crisis exacerbated by COVID-19's school closures
- Most important factor contributing to student achievement: quality of instruction
- Most effective interventions at increasing student learning are concerned with improving the quality of instruction (Evans and Popova, 2016):
 - pedagogical interventions that match teaching to individual student learning levels
 - individualized, repeated teacher training, associated with a specific method or task

Teaching in developing countries is complex

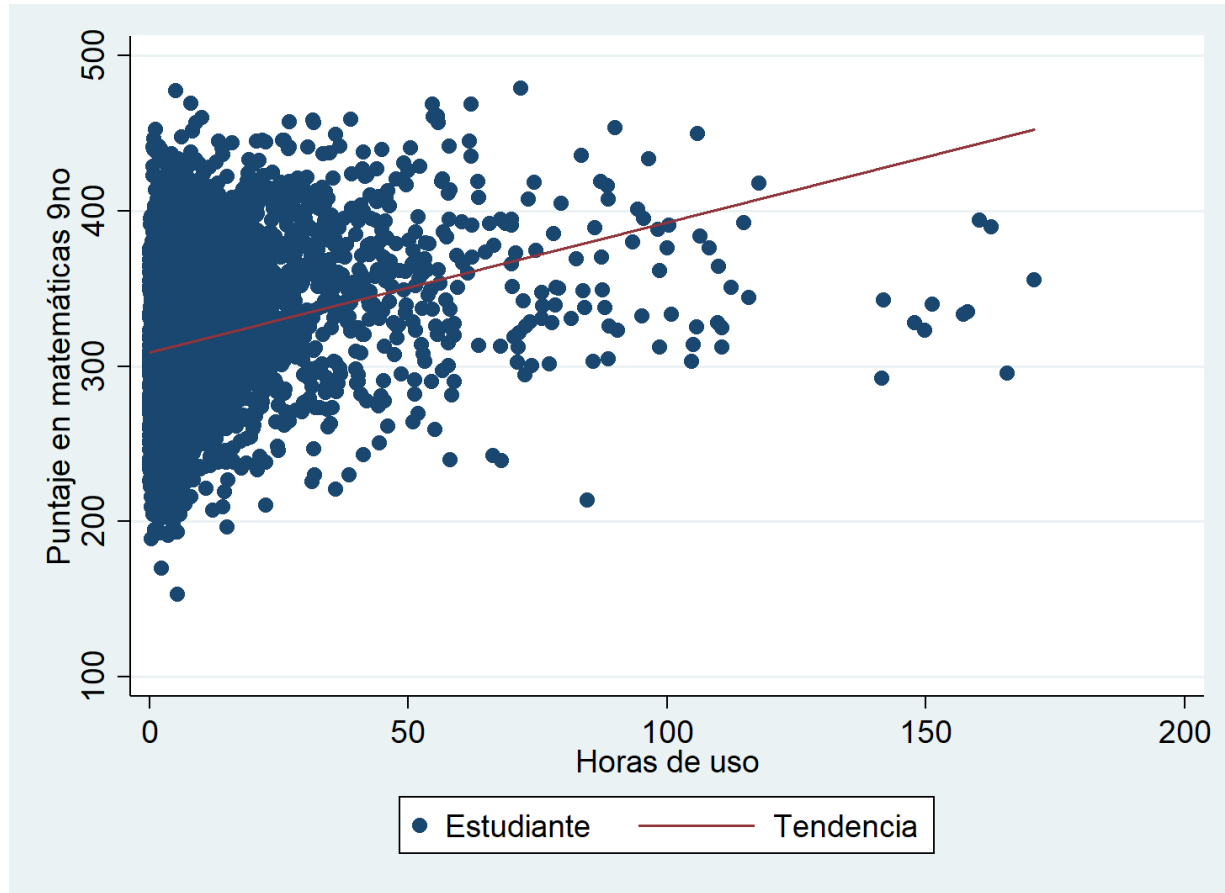
- High student-teacher ratios
- Curricula in developing countries originally designed to screen gifted students for positions of responsibility
- Teaching to the top (or other part of the distribution)
- In Africa: high-quality studies of pedagogical interventions--- those using **adaptive instruction** are almost **four times as effective** at raising student learning as those with non-adaptive instruction

How does technology enter the picture?

- Individualized instruction seems to raise student achievement
- Technology helps with many of the challenges teachers face in the classroom
- Technology can support teachers adapt instruction to the level of their students for all students in different ways:
 - Teach at multiple levels
 - To all students
 - At different pace
 - With different pedagogical approaches (either for the teachers on what to teach or directly with the students)

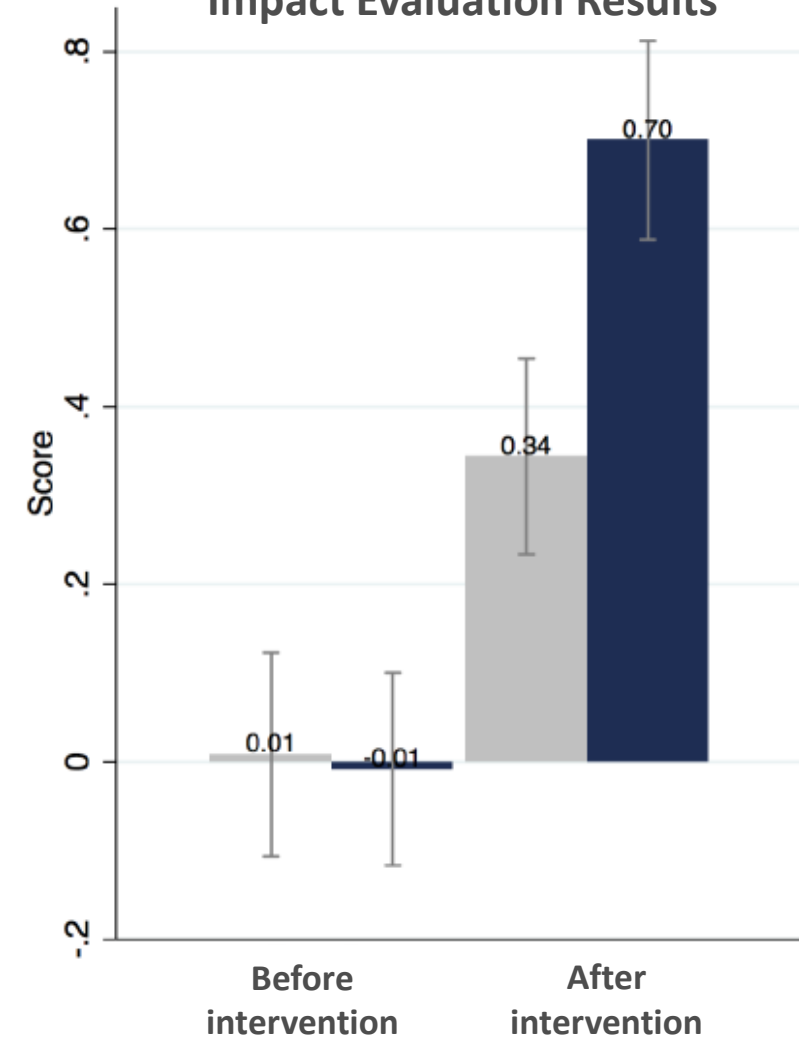
Dominican Republic and India

Dominican Republic



Source: World Bank and Minister of Education of the Dominican Republic

India:
Impact Evaluation Results



Source: Muralidharan et al. (2017). Disrupting Education? Experimental Evidence on Technology-Aided Instruction in India. NBER Working paper Series 22923, National Bureau of Economic Research, USA. ([Link](#))

Implementation requirements

The trick is making sure that students can use the software

Can you make sure that

1. a computer/tablet/phone is available? (Not 1:1)
2. hardware has the right software? (feedback, collects data, language, contextualized and aligns with curriculum, simple, it is actually adaptive!)
3. principals, teachers, and students are on board?
4. connectivity exists? (not necessary)
5. electricity is available?
6. hardware is securely stored?
7. it is implemented in the school?
8. it can be scaled up?
9. funding exists?
10. you understand the context and adapt the solutions to it?
11. You measure the impact of technology on learning and other variables?
12. Others you might add...



Key messages

- Focus on the pedagogical problem to solve, then focus on the technology:
That way this technology has enormous potential!
- Countries are best positioned to **design the pedagogical intervention** (e.g. hours per weeks, integration, use of data)
- Providers “provide” the tool, but they will “not provide” you with information about:
 - **How to** use it in public schools
 - **How to** integrate it in schools, with varying degrees of teachers’ digital skills
 - **Simple solutions for low implementation capacity**– Products have too many bells and whistles – be in control of what you want
 - **Valuable information is collected** regarding the differences in learning levels; these data presents an opportunity for teachers to better cater to students’ learning gaps, even during normal classroom hours

Technology to Support Adaptive Individualized Instruction

Juan Baron

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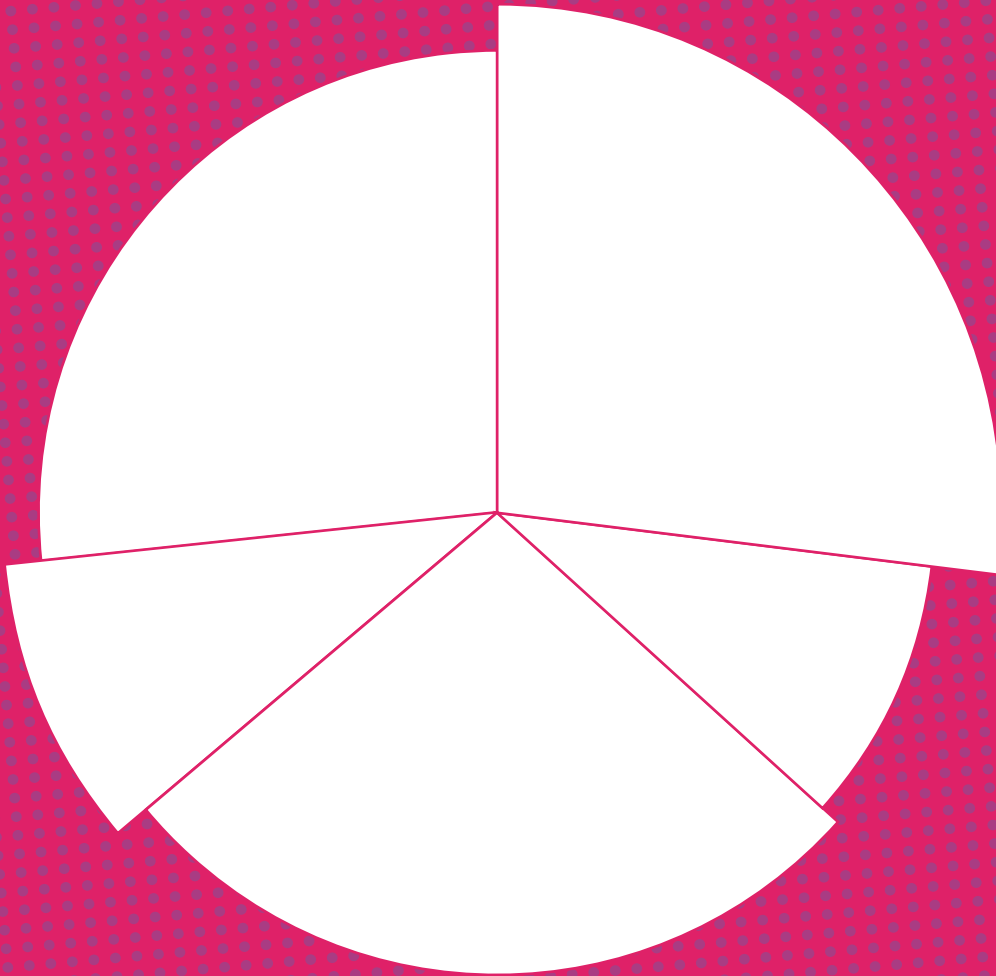
September 29, 2021

Podcast on implementation challenges:

- Apple: <https://podcasts.apple.com/us/podcast/mitigating-learning-losses-accelerating-learning-through/id1523333192?i=1000524702586>
- Spotify: https://open.spotify.com/episode/6lqG04BaEuzzmbAouKiMAG?si=8VHG5JJJaSEG1sqUfbrfexw&dl_branch=1
- Anchor: <https://anchor.fm/world-bank-edutech/episodes/Mitigating-Learning-Losses-and-Accelerating-Learning-through-Adaptive-Learning-lessons-from-Ecuador-and-the-Dominican-Republic-e12dav5>



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APPENDIX B



REPORT
APRIL 2021

MEASURING THE IMPACT OF COVID-19 ON LEARNING IN RURAL KENYA



EXECUTIVE SUMMARY

From a sample of 965 students in rural Kenya, who participated in Project iMlango and had a reliable Maths Age in March 2020 (when schools closed due to COVID-19) and were reassessed in the 2020-21 academic year:

- 53% of students exhibited declines in their levels of maths knowledge ('Maths Age')
- The average loss among those students was 1.1 years, or 13 months
- Losses were observed across the maths curriculum and were most pronounced in topics rooted in core calculational procedures
- Grade level is a predictor of learning loss, with a greater proportion of students in lower grade levels affected. This is most likely because these students have a smaller pool of core knowledge to draw on and are therefore more vulnerable to erosion of previously acquired knowledge.
- A greater proportion of students from reportedly 'hardship' areas experienced learning loss, although their average losses were in line with students from 'rural' and 'urban' areas

53% OF STUDENTS
EXHIBITED DECLINES IN
'MATHS AGE'



This study extends findings observed in the UK and US, with a greater proportion of students experiencing learning loss, and to a greater extent on average. The findings are largely explained by the limited learning provision for these communities during COVID-19. Students in rural Kenya who were already lagging several years behind their affluent peers in Kenya and worldwide are now at a further disadvantage, with knowledge gaps exacerbated across the maths curriculum.

1. BACKGROUND AND METHODOLOGY

Nationwide school closures were introduced to Kenya on March 20 2020, leading to several months of lost learning potential as students lacked access to structured learning support at home. Students received negligible access to Maths-Whizz virtual tutoring during this time. Furthermore, most households did not have connectivity and/or an internet-enabled device. Radio and televised home learning was made available at the national level, though was not widely accessible. In addition, iMlango disseminated worksheets to teachers via WhatsApp groups covering all project communities, but penetration of this activity was similarly inhibited by access issues. The stark reality is that students lacked structured and sustained support with their learning during the first phase of COVID-19.

While students have returned to school in recent months, it is posited that many have experienced a decline in their knowledge levels as previously acquired knowledge has eroded. The purpose of this study is to measure the extent to which the disruptions brought about by the first wave of COVID-19 have impacted on students' knowledge levels in mathematics for students in rural Kenya.

MATHS AGE

Students' knowledge levels in mathematics are measured in terms of Maths Age, Whizz Education's international benchmark for attainment. Maths Age is a criterion-referenced metric with a natural interpretation: a student with a Maths Age of 9 has the maths knowledge expected of a nine-year-old.

When students undertake a diagnostic assessment on Maths-Whizz, they receive a Maths Age across several topics, as well as an overall Maths Age (the mean of those topics). As students interact with the Maths-Whizz virtual tutor, their Maths Age is continually updated from lesson to lesson.



SAMPLE

Among the approximately 80,000 students who participated in Project iMlango, we have filtered on the following requirements:

- 1. The student was active on the Maths-Whizz tutoring platform for at least 30 minutes/week between their initial assessment and March 20 2020. This ensures that the Maths Age recorded for those students on March 20 2020 (our baseline) is a reliable indicator of their maths knowledge at that time.**
- 2. Students have undertaken a reassessment on Maths-Whizz in the period Oct 12 2020 - Mar 17 2021. Thus an up-to-date snapshot of those students' knowledge levels at the point where they returned to school, as indicated by their reassessed Maths Age, is also available. There is variation in when students returned and were reassessed, therefore some may have benefited from a small degree of in-school learning this academic year prior to their reassessment.**

965 students from 88 schools met these requirements and form the basis of analysis

Since the students meeting the requirements of our analysis were necessarily those with consistent activity on the virtual tutor prior to school closures, there is some selection bias in the sample. These 965 students are not representative of general Maths-Whizz usage patterns within iMlango. In particular, their levels of activity should be considered exceptional since they managed to maintain consistent usage up until March 2020, despite the prevalent contextual challenges. Our estimates concerning the degree of learning loss should be interpreted within this context.

2. OVERALL MEASURE OF LEARNING LOSS

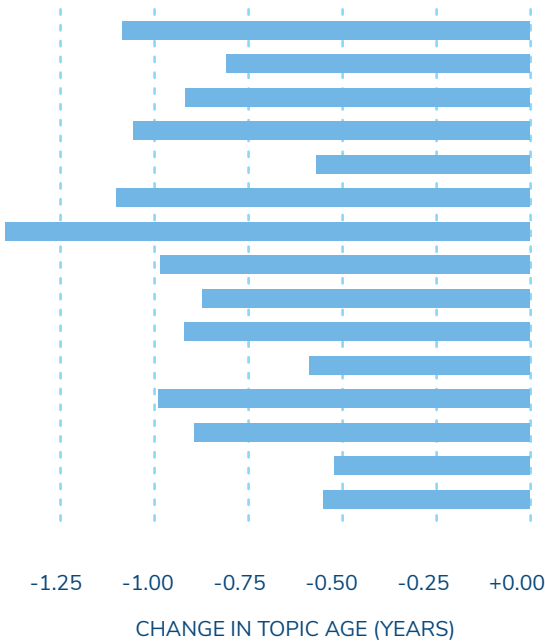


FIGURE 1: LEARNING LOSS BY TOPIC BETWEEN MAR 2020 AND THE 2020-21 ACADEMIC YEAR



¹ <https://www.whizzeducation.com/wp-content/uploads/Data-to-Insight-to-Action-White-Paper-Whizz-Education-1.pdf>

Our sample of 965 students showed an average Maths Age of 9.28 on March 20 2020 and 8.98 at reassessment, pointing to an overall average learning loss in excess of 3.5 months. (It is worth noting that these students were on average 3 - 4 years behind their international peers to begin with.)

514 students (53%) exhibited learning loss in this period, as indicated by a decline in their Maths Age. Those students exhibited an average loss of 1.1 years, or just over thirteen months.

Since Maths-Whizz assesses students on a per-topic basis, these losses can be analysed at the topic level:

- OVERALL
- PLACE VALUE
- PROPERTIES OF NUMBERS
- FRACTIONS
- DECIMALS
- MENTAL CALCULATIONS: + & -
- PENCIL & PAPER - ADDITION
- PENCIL & PAPER - SUBTRACTION
- MENTAL CALCULATION: X & /
- PENCIL & PAPER - MULTIPLICATION
- MEASURES
- PERCENTAGES & RATIO
- INTEGERS, POWERS & ROOTS
- EQUATIONS, FORMULAE & IDENTITIES

Learning loss is thus a curriculum-wide phenomenon in mathematics. The topics showing the steepest losses are those containing formal calculation methods, which are a foundational layer of the maths curriculum and require regular practice and consolidation in order for students to become fluent.

47% of students showed an improvement in Maths Age, with an average gain of 0.62 years. This is close to the annual rates of learning (0.58 years of a standard maths curriculum) established at the baseline of Project iMlango.¹ During that project we observed more than a doubling of learning rates for students who enjoyed sustained access to Maths-Whizz virtual tutoring. This suggests that, on average, even those students in rural Kenya least affected by COVID-19 were only able to achieve rates of learning seen prior to intervention. It is worth noting again, however, that these students had no access to school during this period, so gains of any kind must be accounted for as a subject for further research. We can speculate that these students may have received proportionately higher levels of access to learning content in the forms described earlier (both during and - to a small degree - after school closures), and that their prior exposure to virtual tutoring helped embed core knowledge that was thus retained during this period. As mentioned above, there was also a natural bias to the selection which meant that the sample comprised, by default, those students who exhibited consistent usage throughout the project, and therefore might be assumed to be more proactive or resilient in the face of learning disruptions, or better supported with learning at home. In the absence of individualised tutoring during the first wave of the pandemic, however, even these students regressed to rates of learning that are well below their affluent peers, both in Kenya and worldwide.

3. LEARNING LOSS BY SEGMENT

This section takes a closer look at the extent to which different groups of students have exhibited learning loss during COVID-19. The charts that follow focus on the percentage of students exhibiting learning loss within each segment, as well as the average loss among those students who exhibited learning loss.

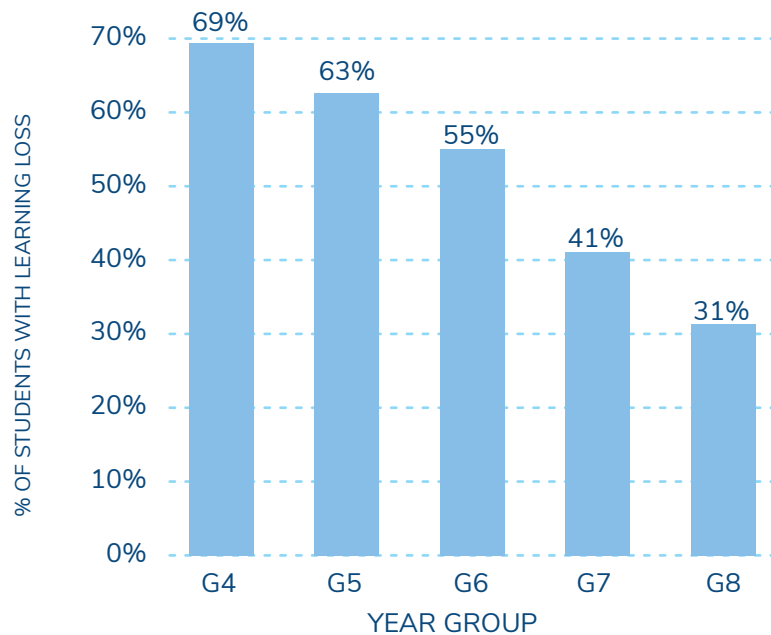


FIGURE 2: PERCENTAGE OF STUDENTS WHO EXPERIENCED LEARNING LOSS BY GRADE LEVEL

GRADE LEVEL

A higher proportion of students exhibited learning loss in the lower grades; in fact there is a clear downward trend from G4 to G8. This is likely because those students have a smaller pool of core subject knowledge to draw on, which means their previously acquired knowledge is harder to retain.

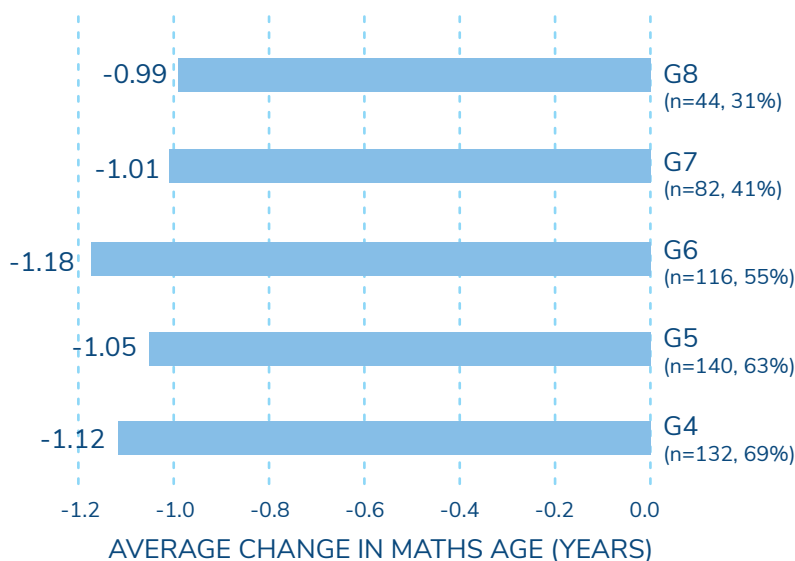


FIGURE 3: AVERAGE LEARNING LOSS BY GRADE LEVEL FOR STUDENTS WHO EXPERIENCED LEARNING LOSS

The amount of learning loss suffered by students in each grade shows some variation, with G6 students impacted the most.

GENDER

A slightly higher proportion of boys exhibited learning loss compared to girls (55% vs 50%), but losses were more pronounced for girls (1.18 years vs 1.04 years; a difference of almost 7 weeks of learning).

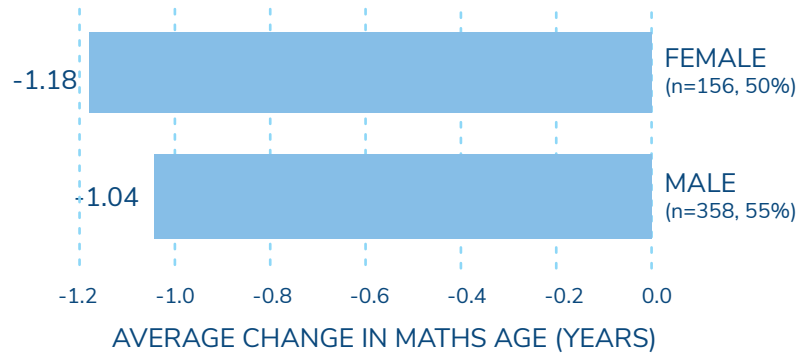


FIGURE 4: AVERAGE LEARNING LOSS BY GENDER FOR STUDENTS WHO EXPERIENCED LEARNING LOSS

SCHOOL TYPE

Our sample includes students from schools marked as either urban, rural or hardship (so labelled because these are schools more prone to insecurity, poor transport, famine, hunger, aridity, flooding and extreme living conditions compared to the other rural schools). As might be expected, a higher proportion of students in hardship schools exhibited learning loss compared to students in rural school who, in turn, were more likely to experience learning loss than students in urban schools.

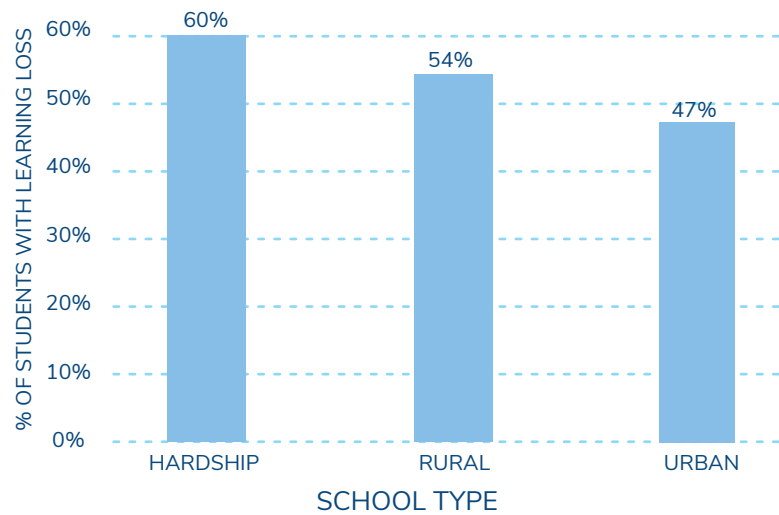


FIGURE 5: PERCENTAGE OF STUDENTS WHO EXPERIENCED LEARNING LOSS BY SCHOOL TYPE

The extent of learning loss, among those students affected, was at similar levels across these groups, with rural students seeing slightly more extreme losses.

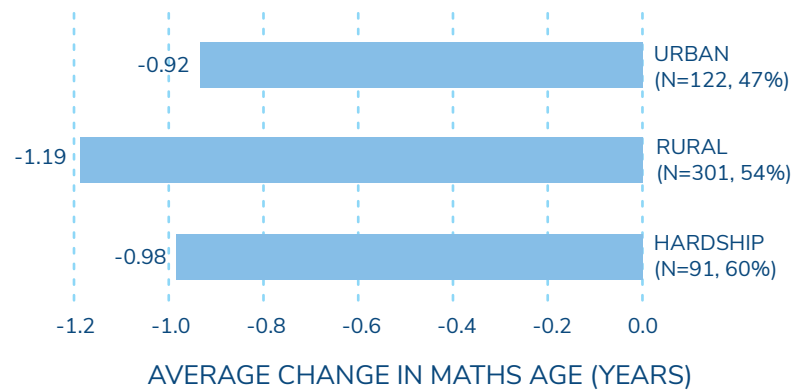


FIGURE 6: AVERAGE LEARNING LOSS BY SCHOOL TYPE FOR STUDENTS WHO EXPERIENCED LEARNING LOSS

COUNTY

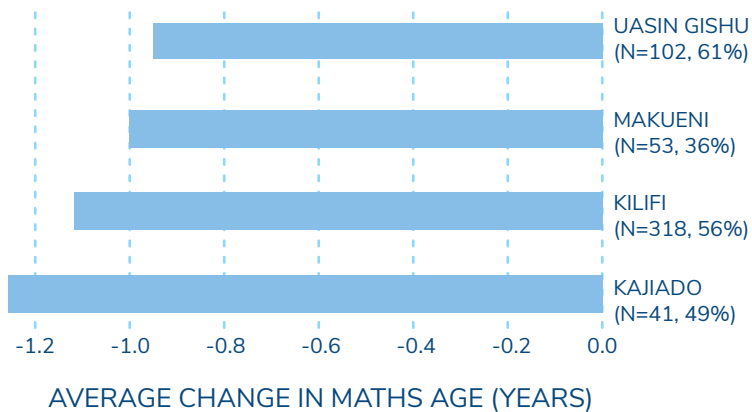


FIGURE 7: AVERAGE LEARNING LOSS BY SCHOOL TYPE FOR STUDENTS WHO EXPERIENCED LEARNING LOSS

Of the four counties from which students were sampled, Uasin Gishu showed the highest proportion of learning loss students (61%), while the losses were most pronounced in Kajiado (1.26 years; a full three months of learning more than Uasin Gishu). Only 36% of students in Makueni showed learning loss, significantly lower than the sample-wide figure of 53%. Students in Kilifi and Kajiado counties are more disadvantaged and face relatively more challenges like lack of water, hostile living conditions, persistent harsh climatic conditions like drought and flooding, unavailability or inaccessibility to food, inadequate transport and communication network. These occur with less frequency in Uasin Gishu and Makueni counties.



4. CURRENT OVERALL KNOWLEDGE LEVELS

To underscore the extent of the challenge involved in recovering learning losses and ensuring students from marginalised communities can progress through the curriculum, we have measured the average knowledge levels by topic for the 6,889 who were reassessed on Maths-Whizz in total between October 12 2020 and March 17 2021.

Maths Delta is simply the difference between a student's Maths Age and their chronological age; a negative Delta thus means students are below expected knowledge levels.

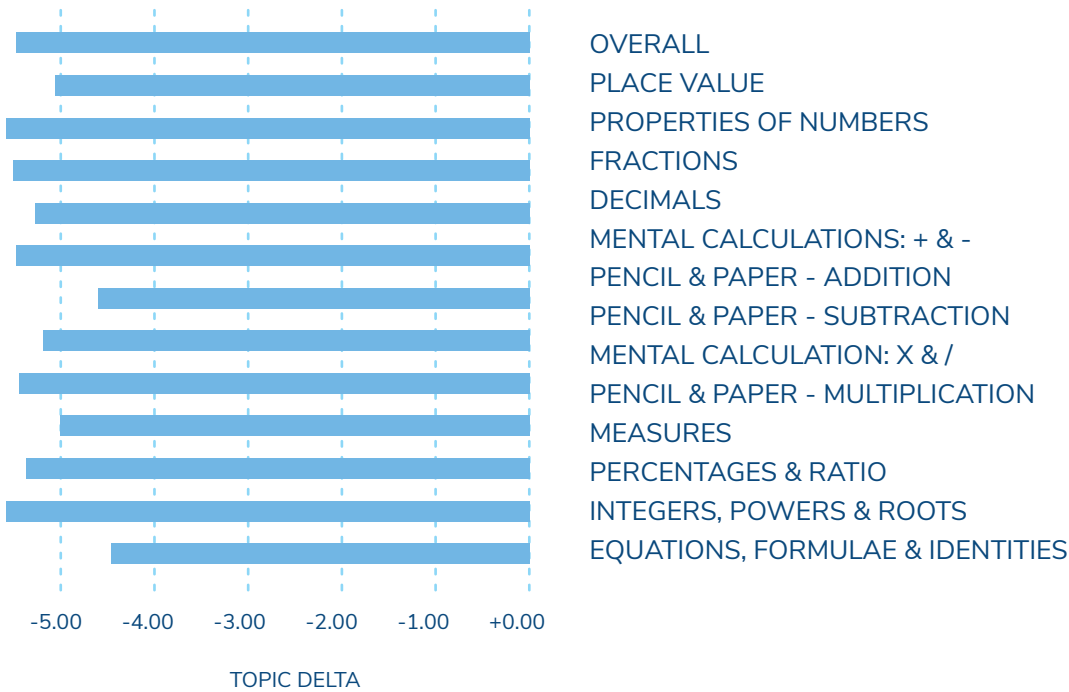


FIGURE 8: MATHS DELTA BY TOPIC

We can see a negative Delta across the maths curriculum. This trend predates COVID-19 but has been exacerbated by the fact that students have had limited opportunities to progress through the curriculum this past year and, as the previous sections detail, many have even slipped further behind in the curriculum. Overall, students are now more than five years behind their expected levels.



5. DISCUSSION

A previous study² carried out by Whizz Education showed that learning loss was evident in the UK and US, as a result of the 2020 lockdown that brought about school closures and other disruptions to learning. That study found that 46% of UK/US students exhibited learning loss between March 2020 and the new academic year, with an average loss of eight months.

The findings of this study extend the narrative of learning loss by showing that a greater proportion of students in rural Kenya have experienced COVID-induced learning losses, and to a significantly greater extent. While students in the developed North were largely able to access regular online learning during the first phase of COVID-19, the opposite was true in rural Kenya. Only a fortunate few accessed the iMlango portal while schools were closed. Very few households have laptops or internet connectivity, while power outages are common. In this context, the findings - as staggering as they are - are to be expected.

A subplot of the learning loss narrative is that losses are not uniformly distributed. Our segmentation analysis shows that grade level is a predictor of learning loss, with lower grade levels experiencing the highest proportion of students with losses. Students in 'hardship' areas are also significantly more likely to have exhibited learning loss. Gender does not appear to be a major predictor of learning loss, with both boys and girls suffering the brunt of COVID-induced school disruptions. A topic for further research is the examination of enabling factors for those students who, despite school closures, secured knowledge gains during the period. The range of learning materials available through formal and informal channels, and the strength of their prior knowledge as a result of their engagement with virtual tutoring, are speculated as possible such factors.

The learning loss wrought by COVID-19 amplifies the need for accelerated learning. Even prior to the pandemic, it was known that students in rural Kenya lagged several years behind their affluent peers. Those gaps have sadly widened, but by targeting our analysis at the level of individual topics, we have identified curriculum areas of focus for recovery programmes.

The learning loss wrought by COVID-19 amplifies the need for accelerated learning.



² <https://www.whizzeducation.com/wp-content/uploads/Lockdown-loss.pdf>

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