

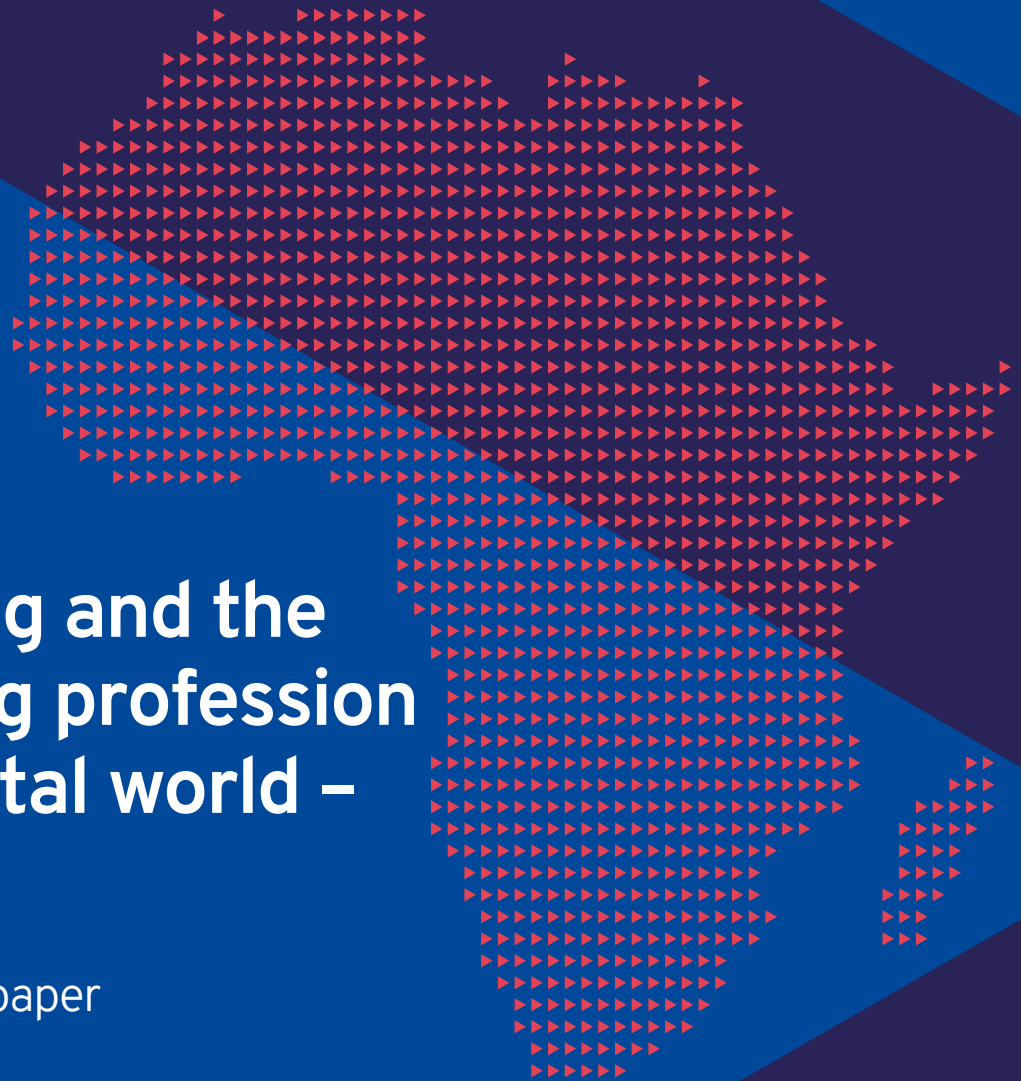


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► Teaching and the teaching profession in a digital world – Kenya

Background paper



► Teaching and the teaching profession in a digital world – Kenya

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Abbreviations

ASAL	arid and semi-arid lands
BEAR	Better Education for Africa's Rise
CBC	competency-based curriculum
COTU-K	Central Organization of Trade Unions in Kenya
CSO	Curriculum Support Officer
DLP	Digital Literacy Programme
GPE	Global Partnership for Education
ICT	information and communication technology
ILO	International Labour Organization
KATTI	Kenya Association of Technical Training Institutes
KESSHA	Kenya Secondary Schools Heads Association
KICD	Kenya Institute of Curriculum Development
KTTC	Kenya Technical Training College
LMS	Learning Management System
ODeL	Open Distance and e-Learning
OER	Open Education Resource
PTR	pupil-teacher ratio
SDG	Sustainable Development Goal
TPD	Teacher Professional Development
TSC	Teachers Service Commission
TVET	technical and vocational education and training
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	United Nations Children's Fund

► 1. Introduction

As key actors in the education system, teachers should be involved in the planning and design of reforms that are likely to impact the delivery of education, including major reforms seeking to integrate technology into teaching and learning. Teachers are central to the mission of schooling and the preparation of future generations for social and economic participation. Education is influenced by changes in society, which tend to create new demands on schools and teachers. Involving teachers and their representative organizations in the response to these demands, at the different levels of design and programming, determines the degree of meaningful consensus achieved on the desired outcomes and appropriate modes of delivery.

Since the COVID-19 pandemic halted face-to-face learning, an increased pace of digitalization has been witnessed in the education system, with the Government of Kenya making meaningful steps towards distance learning. During school closures, lessons were conducted via radio, television and online, and learning materials were shared through messaging platforms. The uptake of technology to continue learning was aided by such international organizations as the Global Partnership for Education (GPE) and UNESCO, which helped to facilitate learning in hard to reach communities, including those in arid and semi-arid lands (ASAL), slums in urban areas and remote communities. In response to the COVID-19 pandemic, some teachers received, and many are continuing to receive, training on the integration of information and communication technology (ICT) in teaching and learning. Training was conducted virtually due to the pandemic. Some teachers were at first reluctant to adopt technology, but over time came to appreciate using ICT-based resources in teaching. In addition to teacher training, the effective integration of technology in education requires investment in infrastructure, including devices and internet connectivity (Barasa, 2021b).

ICT cannot replace teachers, due to the multiple roles that they play in the classroom, such as that of parents, mentors and role models. Nevertheless, ICT will remain key in current and future learning, particularly in view of its potential to facilitate students' own learning with proper teacher guidance. In 2017, the Ministry of Education launched the competency-based curriculum (CBC), which places greater emphasis on attaining knowledge and skills, such as digital literacy, that can be applied to real life situations. In order to impart these competences to both learners and teachers, priority has to be given to integrating technology in teaching and learning. Greater attention also needs to be placed on the preparation of teachers so that they are better prepared for changes in education delivery.

Following a review of current literature and data on digitalization in teaching and education in Kenya, this study highlights three initiatives that support the integration of digital technology in teaching and learning:

- ▶ the Digital Literacy Programme (DLP), which has the objective of enhancing the use of digital technology in schools in support of teaching and learning;
- ▶ the COVID-19 Learning Continuity in Basic Education Project, supported by GPE, which aims to enhance access to online and distance learning for all students in primary and secondary schools; and
- ▶ the Better Education for Africa's Rise (BEAR) II Project, which focuses on enhancing the capacity of the technical and vocational education and training (TVET) system to ensure the employability of trainee graduates.

The study assesses how these initiatives have contributed to the preparedness of the Kenyan education system for disruptions such as the COVID-19 pandemic. It concludes with recommendations in support of the integration of digital technology in teaching and learning.

▶ 2. Methodology

The study includes a literature review of the current state of digitalization in education, as well as interviews with education sector stakeholders to gather information on the impact of digitalization initiatives on teaching and learning and the teaching profession in Kenya. The literature review is based on an analysis of secondary data from government, non-governmental and media reports and articles. Data has been collected on: ICT infrastructure in schools and TVET institutions; policies, plans and strategies to support the integration of digital technology in teaching and learning; teacher training and development in ICT skills and related challenges; partnerships of the Ministry of Education with the private sector for digitalization in education; changes in teachers' working conditions as result of digitalization in education; and teacher opportunities for lifelong learning. Data has also been gathered on the three digitalization initiatives indicated above that are the focus of this study.

Interviews were also carried out with key informants and focused on understanding the challenges to and achievements of the three digitalization initiatives. Other focus areas included the state of digitalization in education, challenges to the integration of digital technology in education and the preparedness of the Kenyan education system for disruptions such as the COVID-19 pandemic. Interviews were undertaken between September and November 2021 with key education sector stakeholders from the Central Organization of Trade Unions in Kenya (COTU-K), the Ministry of Education, the Teachers Service Commission (TSC), the State Department of Vocational and Technical Training, the State Department of Early Learning and Basic Education, the Kenya Secondary Schools Heads Association (KESSHA) and the Kenya National Bureau of Statistics.

▶ 3. Brief overview of the education sector

3.1. Key policies and initiatives

At the All sub-Saharan Conference on Education for All, held in 1999, sub-Saharan countries agreed to develop successful education systems and reaffirmed that education is a basic right. They also agreed to remove barriers to fully realizing education for all African children (UNESCO, 2000). Education as a fundamental human right is enshrined in the Education 2030 Agenda, which calls on countries to: “Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all”.¹ It is the bedrock of more inclusive and sustainable societies. African countries, including Kenya, see education as a major driver of societal development and economic growth. For example, Aspiration 1 of the African Union Agenda 2063 calls for sustained investments at all levels of education with the aim of developing human and social capital through innovation, science and technology to realize a “prosperous Africa based on inclusive growth and sustainable development”.² Raising the quality and relevance of education, training and research is recognized as key to equitable social development in Kenya Vision 2030.³

The education system in Kenya includes eight years of primary education and four years of secondary education. Primary education is compulsory and both primary and secondary education are free. The education system includes vocational and professional training, as well as higher education. The Government has made significant efforts towards achieving the ‘No Child Left Behind’ initiative. On 9 September 2021, the Cabinet Secretary of the Ministry of Education, reporting on Form One admissions (students transitioning from primary to secondary school), indicated that 17 counties had achieved 100 per cent transition (KTN News, 2021),⁴ which is a key milestone towards universal education for all. Nevertheless, challenges persist in the implementation of the 100 per cent transition policy, including low access to education by vulnerable children and those from marginalized regions, low achievements in literacy and numeracy, weak linkages between training institutions and industry, low demand for TVET training and gender disparities (Omondi and Kinyanjui, 2021). The costs associated with schooling, such as uniforms, learning materials, meals and transport, are also a barrier for some parents.

School closures in response to the COVID-19 pandemic have undermined some of the progress achieved in school enrolment. According to the UNESCO Institute of Statistics,

¹ For more information, see UNESCO, [Education 2030: Incheon Declaration and Framework for Action for the Implementation of Sustainable Development Goal 4](#).

² See [Agenda 2063: The Africa We Want](#).

³ See [Kenya Vision 2030](#).

⁴ There are 47 counties in Kenya.

close to 1.8 million children and adolescents between the ages of 6-17 are out of school (UNESCO, 2021a). A baseline survey reveals that 16 counties (Baringo, Bungoma, Garissa, Kajiado, Kilifi, Kwale, Mandera, Marsabit, Nairobi, Narok, Samburu, Tana River, Turkana, Wajir and West Pokot) have relatively high numbers of out-of-school children, caused by unique factors in the different counties. The numbers are highest in counties in the ASAL. In the 16 counties, herding, casual labour, boda boda (bicycle and motorcycle taxis) and household chores accounted for at least 50 per cent of all the activities engaged in by out-of-school children on a daily basis. Pregnancy, child marriage and child labour were some of the primary reasons for children leaving school. With a view to bringing children back to school in the 16 counties, the Government and UNICEF, with other partners, have launched the second phase of the 'Operation Come to School' initiative aimed at bringing 250,000 out-of-school children back to school by 2023 (UNICEF, 2021).

The CBC, which has its roots in Sessional Paper No. 14 of 2012 on Reforming Education and Training Sector in Kenya,⁵ was rolled out in 2017. Curriculum reforms were informed by discourses on 21st century skills and competences, the Sustainable Development Goals (SDGs), Kenya Vision 2030, the 2014 Draft Harmonised Curriculum Structures and Framework for the East African Community⁶ and a needs assessment carried out by the Kenya Institute of Curriculum Development (KICD) (KICD, 2017). The CBC supports students in the acquisition and use of knowledge, skills and attitudes in everyday situations, and is designed around a set of key competences: communication and collaboration; critical thinking and problem solving; creativity and imagination; citizenship; digital literacy; learning to learn; and self-efficacy. On 16 August 2019, stakeholders held a national conference on curriculum reform to reflect on the progress achieved, explore additional opportunities, ensure greater inclusion and put forward evidence-based suggestions to guide future practice. At the time of the conference, 225,000 teachers had been trained in the new curriculum. Eleven pre-conference sessions were also held on specific themes, such as inclusion through ICT in education, which highlighted the importance of promoting teacher training and development in ICT for advancing digital literacy and collaborative learning (KICD, 2019).

Kenya's commitment to the integration of technology in teaching and learning is captured in a number of policy documents. For example, Sessional Paper No. 14 of 2012, issued under Article 35(3) of the Constitution, sets out a policy framework for education and training which recognizes ICT as a key tool for facilitating teaching, learning and research in education and training and the central role of teachers in the teaching and learning process. One of the strategic objectives is to support teachers in the acquisition of ICT competences (Government of Kenya, 2012). These understandings and objectives are reiterated in

⁵ Kenya, Ministry of Education and Ministry of Higher Education, Science and Technology, "Sessional Paper No. 14 of 2012 on Reforming Education and Training Sectors in Kenya".

⁶ East African Community, "Draft Harmonised Curriculum Structures and Framework for the East African Community: Primary education", Arusha, 2014.

Sessional Paper No. 1 of 2019 on A Policy Framework for Reforming Education and Training for Sustainable Development in Kenya: Towards Realizing Quality, Relevant and Inclusive Education and Training for Sustainable Development (Government of Kenya, 2019b).

3.2. Class sizes and pupil-teacher ratios

Challenges in the teaching profession, including teacher shortages and high pupil-teacher ratios (PTRs) and class sizes, can act as impediments to achieving universal education and quality education. In Kenya, class sizes vary greatly between public and private schools in both primary and secondary education. Public schools have relatively more students per class than private schools. Class sizes increase in secondary schools, as there are fewer schools and more children need to be absorbed each year. This increase is largely attributed to the Government making primary and secondary education free and the 100 per cent transition policy, as well as initiatives such as 'No Child Left Behind'. To accommodate more students, some make-shift classes have to be held in tents or other buildings, such as dining halls, libraries and laboratories, which have been converted into regular classrooms. In contrast, private schools strive to keep class sizes small, as parents demand greater teacher attention for their children for increased academic performance (Barasa, 2021a).

Teachers' unions have often raised concerns at the inadequate numbers of teachers and classes to accommodate the growing number of students transitioning from primary to secondary education. They contend that Kenya has failed to meet internationally accepted standards. In 2017, the PTR in public primary schools was 56:1, compared with the recommended PTR in Kenya of 40:1. In public secondary schools, the student-teacher ratio (STR) was 41.1 (Mbaka, 2017). The PTR varies across counties. For example, in Turkana it is 77:1.⁷ Reforms in the education sector, including the introduction of the CBC and 100 per cent transition policy, cannot be realized without quality teaching and appropriate class sizes. Large class sizes make it difficult for teachers to play the multiple roles demanded of their profession, including that of parents and mentors.

Class sizes contribute to determining the demand for teachers, their working time and the proportion of their time devoted to the various tasks and duties (instruction, individual time with students, extracurricular activities, grading and assessment, lesson preparation, etc.). Class size and PTRs also contribute to determining the cost of education (OECD, 2021). For these reasons, class sizes and PTRs are much discussed and debated. According to the 1966 ILO/UNESCO Recommendation concerning the Status of Teachers, to ensure the conditions for effective teaching and learning, "Class size should be such as to permit the teacher to give the pupils individual attention. From time to time provision may be made for small group or even individual instruction for such purposes as remedial work, and on occasion, for large group instruction employing audio-visual aids."⁸

⁷ UNICEF, [Kenya - Education](#), accessed 6 December 2021.

⁸ [ILO/UNESCO Recommendation concerning the Status of Teachers \(1966\)](#), Paragraph 86.

According to the Teachers Service Commission (TSC), by 2023, the projected teacher shortage in primary and secondary schools will be 34,941 and 61,671, respectively. Disparities also remain in the distribution of teachers across the country, which have affected commitments to equity in the delivery of education. Insecurity in certain regions, teachers' preferences for urban areas and areas with higher potential, their unwillingness to be separated from families, and medical issues, are some of the key reasons for these disparities. The TSC also notes that there has been a high turnover of teachers in certain subjects, including ICT. These factors have made it difficult for the education system to realize key education initiatives and priorities (TSC, 2019).

3.3. Teachers and the teaching profession

Teachers remain one of the core inputs of education systems worldwide and are key to the achievement of SDG 4 on quality education. Competent and trained teachers are needed to deliver the SDG education agenda, which demands professionalism in teaching. Changes both within and outside the classroom are introducing new and unique demands on teachers. New technologies necessitate the reskilling and upskilling of teachers, and the changing demands of the world of work require adjustments to the curriculum, which all have implications for the kind of teaching and learning taking place in schools. Teachers have to be prepared to deal with the expectations and exigencies of the changing environment.

The available technologies may enable the effective delivery of content, but it also depends on the capacities and competences of teachers in the use of technology. Teachers therefore require training and experience, including with technology. In Kenya, teacher education is provided at three levels of qualification – certificate, diploma and degree. It is carried out in teacher training colleges, technical training colleges and universities. Teacher education programmes are available for: early childhood development and education (ECDE); primary teacher education; secondary teacher education; technical teacher education; and special needs teacher education (Barasa, 2021a; Otunga, Odeo, and Barasa, 2011). Discussions are currently being held on continuous improvement through refresher courses for all teachers.

Teachers in public schools and colleges are posted and managed by the TSC, which formulates policies governing the professional conduct of teachers and teacher qualifications. As of January 2021, the TSC was responsible for 337,432 teachers serving in both public primary and post-primary schools. The TSC Strategic Plan for the period 2015-19 had three main pillars: teacher competence, conduct and performance management; reforms and innovations in the provision of teaching services; and service delivery re-engineering and decentralization. The period 2015-19 saw some notable accomplishments, including the roll out of the Teacher Professional Development (TPD) Framework⁹ and the Teacher Performance Appraisal and Development (TPAD) system, as well as the review of

⁹ Kenya, Ministry of Education, "The Kenya Secondary Education Quality Improvement Project (SEQIP): Project Implementation Manual (PIM)", revised November 2017.

the Code of Regulations for Teachers (CORT) and Code of Conduct and Ethics (COCE). In addition, various policies and administrative guidelines were reviewed. These initiatives have led to improved teacher-learner contact time, efficiency in curriculum delivery and enhanced professionalism in the teaching service.

The TSC Strategic Plan for the period 2019-23 focuses on addressing emerging national priorities, including the shift towards a CBC and the realization of the 100 per cent transition policy. The TSC estimates that KES 114.5 billion (USD 1 billion) will be needed to realize the 2019-23 Strategic Plan. Part of the funding is earmarked to facilitate the recruitment of 95,000 additional teachers and 20,000 teacher interns a year over the five-year period. In addition to Government funds, the TSC plans to reach out to development partners and identify opportunities for public-private partnerships to support the achievement of the strategic objectives (TSC, 2019).

In 2020, in response to a Government directive for all government institutions to be digitalized, the TSC reviewed its 2010 ICT Policy to address technological changes and adopt new service delivery practices. The 2020 TSC ICT Policy aims to ensure that teachers are able to access the necessary information, especially as pertains to their profession, including during crisis situations (TSC, 2020). The COVID-19 pandemic demonstrated the need for greater digitalization of the education system.

► 4. Digitalization in education in Kenya

In response to technological advances and with a view to further aligning policies with Kenya Vision 2030, the 2006 National ICT Policy was revised and the 2019 National ICT Policy developed with the aims, among others, of providing access to ICT for all Kenyans, enhancing capacities to participate in the digital economy and developing the ICT sector. Skills development, e-learning and lifelong learning are central to the revised policy (Government of Kenya, 2019a). According to the International Telecommunication Union (ITU) ICT Development Index (IDI) 2017, Kenya ranked 138th out of 176 countries, although it came out higher than most other East African countries (13th out of 38 countries in Africa).¹⁰

The number of Kenyans aged three years and over using the internet has grown over time to 22.6 per cent of the population (table 1). The rural population accounts for 13.7 per cent of those using the internet. The gender distribution shows that women lag behind men for internet use.

Table 1. Distribution of population aged three years and above using the internet

Residence	Use of the internet					
	Total*	%	Male	%	Female	%
KENYA	9,869,962	22.6	5,408,981	25.1	4,460,639	20.1
Rural*	4,139,595	13.7	2,404,991	16.1	1,734,502	11.3
Urban*	5,730,367	42.5	3,003,990	45.3	2,726,137	39.8

Source: Kenya National Bureau of Statistics, 2020.

Table 2 shows the percentage of the population, aged three years and above, using a desktop computer, laptop or tablet (10.4 per cent), which is an indicator of the capacity to launch a programme facilitated by their use. Table 2 also shows the disparities in distribution between rural and urban areas, as well as between women and men.

¹⁰ For more information, see ITU, [ICT Development Index 2017](#).

Table 2. Distribution of population aged three years and above using desktop/laptop/tablet

Residence	Use of desktop computer/laptop/tablet					
	Total*	%	Male	%	Female	%
KENYA	4,527,254	10.4	2,529,413	11.7	1,997,664	9.0
Rural*	1,614,287	5.3	937,948	6.3	676,295	4.4
Urban*	2,912,967	21.6	1,591,465	24.0	1,321,369	19.3

Source: Kenya National Bureau of Statistics, 2020.

The data in tables 1 and 2 indicate the state of readiness of householders to adopt virtual and distance learning. It also indicates the viability of many digitalization initiatives in education and society, and in the economy more broadly.

ICT integration in learning institutions in Kenya has faced challenges, including: inadequate infrastructure, such as electricity and internet connectivity; the lack of training and continuous professional development (CPD) for teachers on the pedagogical use of digital technologies; the high cost of digital devices and internet services; and funding shortfalls and delays in disbursement, affecting the operation of programmes and capacity-building of teachers (Barasa, 2021a).

4.1. Digitalization in education and the COVID-19 pandemic

In May 2020, the Ministry of Education adopted a three-pronged approach to support remote learning during the COVID-19 pandemic, consisting of: online learning and strengthening the Kenya Education Cloud, an online portal for the submission of content for evaluation; the broadcasting of radio and television programmes for primary and secondary school levels; and access to textbooks and other teaching and learning materials in remote areas (Barasa, 2021b).

A survey conducted by the Usawa Agenda in May 2020 indicated that the most common modes of receiving learning materials during COVID-19 school closures were TV lessons (42.2 per cent), materials provided by parents (37 per cent), materials sent by schools by WhatsApp (27 per cent), radio lessons (19.2 per cent), accessing online KICD materials (9.9 per cent), materials sent by schools by email and SMS (3 per cent) and other sources (25.9 per cent). According to the survey, only 22 per cent of children in Kenya have access to digital learning. Moreover, in addition to access being low, it is inequitable. Children in private schools are twice as likely to have access to digital learning than children in public schools (Uwezo, 2020).

The survey report recommended that the TSC, the Ministry of Education and other stakeholders “re-evaluate and re-position the teacher in delivering digital learning” (Uwezo, 2020, p. 7). Re-positioning should involve enhancing the capacity of teachers and providing incentives for digital education. The report added that digitalization to date has been misconstrued as a replacement of the teacher, but that this notion has been contested by the COVID-19 pandemic.

In the foreword to the TSC Remote Learning Methodologies – Manual for Teachers (2021), the TSC Chairperson indicated that:

►► The Teachers’ Service Commission has been encouraging teachers to become more innovative in their service delivery and to *inject new ideas and approaches*. The second Kenya professional teaching standard (KePTS) expects teachers to use a *‘variety of instructional strategies in order to meet individual learning needs’* to effectively engage their learners. In essence, teachers are supposed to seek ways and means to practice at all times using whatever available resources in their disposal. Available resources in these instances, when learning within the classroom walls is not possible, include the radio, television, mobile phone, internet connectivity among others (TSC, 2021, p. i).

The insistence that teachers use the available resources at their disposal, including radio, television, mobile phones and internet connectivity, to meet learning needs, demonstrates the key position of teachers in the teaching and learning process, and therefore the importance of prioritizing teacher capacity building for effective education delivery, including in times of crisis.

Digital technologies have been successfully adopted in business and the finance, transport, health and manufacturing sectors in Kenya. Greater attention is also being placed on (further) integrating digital technologies in education. Digital technologies present an opportunity to increase teacher-student engagement for enhanced learning and knowledge retention. Teachers can structure their lessons to accommodate available digital tools to improve delivery, particularly as technology can augment existing learning resources to enhance teaching and learning. Teacher awareness of relevant digital technologies and the ability to use them effectively is vital in this regard.

The COVID-19 pandemic created a sense of urgency in relation to the use of digital tools in teaching and learning as a result of the enforced cessation of face-to-face learning. The extent to which traditional school-based models of teaching are appropriate for the digital age needs to be re-examined as digital tools are continually transforming the world outside schools. For example, the challenges faced by Kenyan TVET institutions include the increase in student diversity (age, socio-economic status, ethnicity and learners with different abilities) and class enrolment, which has raised questions about whether effective teaching and learning can be achieved through traditional school-based models now and in the

future, whether tutors are equipped for the effective management of increasing student diversity for productive learning and the value that the teaching profession can draw from existing digital technologies (key informant interview, 2021).

The debate on investing in digital infrastructure and in training in relevant skills to meet labour market needs has been protracted and has only recently been prioritized by key ministries with the advent of the COVID-19 pandemic. The disruption caused by the pandemic in workplaces, which required many employees to work from home, exposed deficiencies in the necessary infrastructure and skills for remote working, and particularly in skills training institutions. In Kenya, learning was halted in all learning institutions until the Ministry of Education, in collaboration with the Ministry of Health, reopened learning institutions in phases with strict pandemic protocols. The pandemic showed that, if current ICT skills and competences are not enhanced, possible future disruptions may still negatively affect teaching and learning, as well as work in general (Barasa, 2021b). Lifelong learning, if properly implemented, can support the upskilling and reskilling of the workforce, including teachers, and would reduce both redundancies and skills gaps.

To effectively implement the CBC, respond to labour market needs and be able to transition to online teaching and learning when needed, greater attention must be given to teacher education and training and working conditions, access to digital equipment and resources for learners and educators, and partnerships with the Ministry of Education to support digitalization efforts. As seen during the school closures, some private schools, were not able to transition to distance teaching and learning, and were unable to pay teachers' salaries without tuition fees (Barasa, 2021b).

4.2. Teacher training initiatives during the COVID-19 pandemic

The TSC used the existing platform of the ICT Authority of Kenya to train teachers to support remote learning through a project entitled Remote Learning Methodologies. The Ministry of Education, the Kenya National Examination Council (KNEC), the Kenya Institute of Special Education (KISE), the Centre for Mathematics, Science and Technology Education in Africa (CEMASTEA), KICD, the Information Communication and Technology Authority (ICTA), the Kenya Primary Schools Heads Association (KEPSHA), KESSHA, the Kibabii Diploma Teachers Training College and the Eregi Teachers Training College were all involved in the design and development of the Remote Learning Methodologies: Manual for Teachers, which provides guidance for teacher training. The Manual was developed on the basis of the DLP, discussed below, with a view to broadening the concept of remote learning.

Training was provided on 7 June 2021 for secondary school principals, on 10 June 2021 for primary and secondary school teachers and ICT champions and on 11 June 2021 for Curriculum Support Officers (CSOs) and ICT champions. School principals were trained in remote learning practices, the monitoring of remote learning in the field and scaling

challenges in the implementation of remote learning in the field. Teachers were trained, among other subjects, in delivery modes for remote learning, digital citizenship, online safety and security, the creation of digital content, accessing the Kenya Education Cloud and Open Education Resources (OERs), effective pedagogies for remote learning, planning and implementing remote learning lessons and assessing learners in remote learning (Teachers Arena, 2021).

The ICT Authority of Kenya provided the equipment for the training, which was funded by the World Bank. Overall, 165,000 (55 per cent) of the TSC teaching workforce was trained virtually. The TSC targeted at least three teachers from every primary and secondary school, and the training covered 30,000 basic learning institutions. However, one challenge is that the TSC sometimes transfers teachers without consulting the respective head teachers, thereby creating gaps in trained personnel in some institutions.

The objectives of the training included:

- ▶ the use of remote learning methodologies to address teacher shortages in arid counties in North Eastern Kenya;
- ▶ training teachers to help them creatively expand the use of ICT to improve learning outcomes; and
- ▶ the introduction of diverse modes of instruction for students during COVID-19, including live-streaming teachers in school (key informant interview, 2021).

An interview with a key informant from the KESSHA revealed that two schools in Kenya, the Machakos School and the Lenana School, are now equipped with facilities that enable teachers to plan, prepare and share lessons over the radio. A teacher in either school can reach students across the country, provided that the timetable is synchronized. Using sound bars, the teacher can manage the classroom. Initially, teachers in 12 secondary schools were involved in a pilot project and were expected to critique their colleagues' lessons and then share perspectives about the lessons with other teachers by e-mail, cassette or any other means, such as a learning management system. However, the necessary infrastructure was not fully developed and the Chairperson of the KESSHA indicated that the cost of internet connectivity was prohibitive and unsustainable (key informant interview, 2021).

4.3. Stakeholder perspective: the Central Organization of Trade Unions in Kenya

The Central Organization of Trade Unions in Kenya (COTU-K) is the umbrella body for all unions in Kenya, including teachers' unions. A key informant from COTU-K indicated that the integration of digital technology in teaching and learning is a priority for a number of reasons, including its potential to increase productivity and the involvement of its members. The use of digital platforms for learning and training is a new strategy that emerged during the COVID-19 pandemic. The major challenges to the integration

of technology in teaching and learning include limited access to devices and internet, the lack of affordability of technology and the absence of adequate capacity building for teachers, trainers and learners.

Addressing these challenges requires a greater exchange of knowledge and consultation between the Government and teachers' unions. The human development aspect of digitalization initiatives should not be overlooked, and the priority of these initiatives must always be to improve the quality of teaching and learning. Further efforts need to be made to deliver on the laptops promised for all schools through the DLP project and effective teacher training and development. Teachers' efforts to integrate technology in teaching and learning should be recognized and supported. Overall, there is a need for better planning, funding and regulation to ensure effective digitalization in education.

With reference to the TSC's policies on teacher training, the key informant from COTU-K explained that the TSC has instituted a new policy requiring teachers to be retrained to retain their registration. The COTU-K is opposed to the Teacher Professional Development (TPD) Policy because the TSC does not fund the training, which requires quite some time to complete. Furthermore, COTU-K recommends the use of government institutions, namely public universities, rather than private universities, to prepare and train teachers.¹¹ The TSC should formulate guidelines and recommendations on how training is to be conducted and reduce the time that teachers spend on professional development. Under the TPD Policy, 'almost 30 years' would be required to cover all the modules. Teachers' unions should be consulted to provide input for policies and plans (key informant interview, 2021).

¹¹ The TSC contends that many public universities did not indicate an interest in the tender requesting expressions of interest (key informant interview, 2021).

► 5. Digitalization in education initiatives

Several recent and ongoing initiatives for digitalization in education show the progress made by the Government in integrating technology into teaching and learning with a view to improving education outcomes and quality. One such initiative is the Tusome programme, which aims to improve national learning outcomes. In addition to pedagogical training, the programme provided technology to train CSOs through the use of tablets for the virtual observation of classroom practices. Teachers also received training on working collaboratively with CSOs to enhance teaching quality (Myers, Kaye and Khalayeh, 2021).

5.1. Digital Literacy Programme

The Government is making steady strides in enhancing teacher capacities in relation to ICT and remote teaching through various initiatives. In 2013, the Digital Literacy Programme (DLP), which is also known as DigiSchool, was initiated with the aim of preparing every pupil for today's digital world. The DLP is hosted by the Ministry of ICT, Innovation and Youth Affairs and aims to introduce public primary school students and teachers to digital technology as part of the development of a 21st century education system. Key components of the DLP include: the provision of digital devices for both learners and teachers; capacity development for teachers; the provision of broadband connectivity equipment; the provision of content for digital learning; and the local assembly of digital devices and related accessories. According to the programme webpage (ICT Authority, n.d.), the objectives of the DLP are to:

- entrench ICT in teaching and learning processes and in the management of education in primary schools;
- equip public primary schools with appropriate ICT infrastructure to support teaching and learning processes;
- develop the capacity of education managers, primary school teachers and other stakeholders to enable them to use a wide range of ICT tools in teaching and learning processes and in school management;
- facilitate the development and accreditation of appropriate digital content to enhance the acquisition of 21st century skills;
- promote universal access to and the equitable distribution of ICT infrastructure in primary schools; and
- integrate a sustainable and affordable digital programme into the Kenyan education system.

Prior to implementation, schools are assessed for their e-readiness. An e-ready school has: a connection to either the national grid or to solar power; secure and well-ventilated

storage cabinets with adequate charging ports; sufficient flat wide desks for all students; a dust-proof classroom; ample security for the devices, with storage spaces protected by grilled doors and windows; and at least two trained teachers per school. As part of the programme, e-ready schools are provided with luminous green tablets for pupils and sky blue laptops for teachers, as well as projectors, a digital content server and a wireless router. Special needs schools also receive a braille embosser. The devices supplied to schools for DLP are pre-loaded with content developed by KICD in five subjects (mathematics, Kiswahili, English, science and social studies). Teachers' laptops and servers are pre-loaded with teacher training curricula on ICT integration, a teacher training manual on ICT and a teacher resource kit. A list of approved textbooks for primary schools is also provided on the ICT Authority website (ICT Authority, n.d.).

The DLP is being implemented in phases. Phase 1 – “Learning to Use” – focuses on exposing teachers and students to user-friendly technology. Phase 2 – “Using to Learn” – focuses on setting up shared digital learning resource centres in schools with appropriate infrastructure and tools. Phase 3 – “Using to Produce” – focuses on making use of technology for employment creation and mentoring learners for development at the tertiary level (ICT Authority, n.d.).

In September 2016, the ICT Cabinet Secretary announced that, following the successful implementation of the DLP in public primary schools, it would be expanded to other learning and training institutions, including secondary schools. He added that the Government is entering into partnership with the private sector to train youth in ICT. However, the effective operation of the programme has faced the challenge of the lack of financial resources and appropriate infrastructure. The ICT Authority has also noted that most devices are not in use due to the lack of trained personnel and electricity in some schools. According to a 2018 report by the TSC, approximately 80 per cent of teachers have knowledge gaps relating to information technology (Atambo, 2021).

A review of the TSC Strategic Plan for the period 2015-19, contained in the TSC Strategic Plan for 2019-23, noted that approximately 66 ICT champions at the primary school level and some 90,000 teachers have been trained in ICT integration and curriculum implementation through the DLP (TSC, 2019, p. 6). On 22 September 2021, the Kenya News Agency reported that “21,638 public primary schools of the contracted 21,729 schools under DLP Phase one, have been supplied with 1,169,000 devices while partial installations of 1,304 new schools are ongoing under phase 1” (Grace and Opilio, 2021). It was further reported that 218,253 teachers had received training on the CBC and at least 331,000 teachers had been trained in ICT integration and device utilization. In addition, 19,042 public primary schools had been connected to the national grid and 3,239 public primary schools to solar power (Grace and Opilio, 2021).

To enhance the success of the DLP, and particularly to provide learners with access to digital content, the Ministry of ICT, Innovation and Youth Affairs announced in September 2021 the

launch of the Schoolnet Programme, which will be implemented in partnership with UNICEF. Through this programme, 43,000 public and private schools, including in underserved areas, will be connected to the internet to enable them to access updated learning materials through the Kenya Education Cloud and for administrative purposes. The Kenya Education Cloud is a combination of platforms that provides access to high-quality educational content. Established prior to the COVID-19 pandemic, it was given greater priority due to the pandemic. According to the Chief Administrative Secretary for ICT, over 1,000 schools have been identified to participate in the first phase of the programme (Grace and Opilio, 2021).

The DLP has attracted much funding from the Government. In the financial year 2021-22, the programme was allocated KES 420 million (USD 3.7 million) for ICT integration in secondary schools and a further KES 670 million (USD 5.9 million) in the annual budget to help digitalize the economy (Government of Kenya, 2021). Regular funding has ensured the continuation of the programme and the progressive partial achievement of its objectives.

5.2. COVID-19 Learning Continuity in Basic Education Project

In 2020, the GPE allocated USD 11 million to the Government of Kenya for the implementation of the COVID-19 Learning Continuity in Basic Education Project. The aim of the project is to “enhance access to online and distance learning for all students in primary and secondary schools and facilitate a smooth transition in the return to school for targeted vulnerable students”.¹² The project has three components: expanding existing remote learning opportunities for learning continuity for all students in basic education; facilitating a smooth transition back to school for vulnerable students and girls; and project coordination, communication, and monitoring and evaluation (Ministry of Education, 2020).

The project objectives, developed by the Ministry of Education (State Department of Early Learning and Basic Education) as a COVID-19 response and recovery plan, are to:

- ▶ provide access to quality, equitable and inclusive education for learners during and after the crisis to ensure continued learning;
- ▶ facilitate the production of online teaching and learning materials, and expand existing distance learning programmes;
- ▶ train teachers to effectively support distance learning, including monitoring and assessment;
- ▶ develop and implement intervention programmes targeting the marginalized and most vulnerable learners, especially girls and learners with special needs; and
- ▶ provide psychosocial support to learners, teachers, education officials and other stakeholders (Ministry of Education, 2020).

¹² Ministry of Education, “[Kenya GPE COVID-19 Learning Continuity in Basic Education Project](#)”, accessed 22 February 2022.

The project has had a direct impact on a number of stakeholders, including learners, teachers, head teachers and parents, and has entered into partnership with a number of support groups, government agencies, civil society organizations (CSOs) and non-governmental organizations (NGOs) to deliver some of the interventions (Ministry of Education, 2020).

The project recognizes that communities in remote areas and other underserved groups, such as slums in the urban areas, can be further marginalized if e-learning is the only approach adopted. It has therefore: supported the enhancement of existing radio education channels; added new programming to the EDU TV daily transmission schedule; supported the acquisition of supplementary online teaching and learning materials from external partners and their provision free to all learners through radio, EDU TV and e-cloud; strengthened the e-cloud; and adapted current content to be accessed through mobile phones with a view to increasing its outreach.¹³

A survey conducted by KICD in early 2021 showed that a significant percentage of learners were continuing to use remote learning platforms. More specifically, 69.29 per cent of learners watched EDU TV programmes, 42.26 per cent listened to radio lessons, 22.09 per cent viewed content on KICD Education YouTube and 17.02 per cent accessed content on the Kenya Education Cloud. These findings show that, despite the resumption of face-to-face learning, remote learning platforms continue to be accessed by students. Partnerships with community-based radio stations continue to support remote learning in rural areas (Charo, 2021).

The COVID-19 Learning Continuity in Basic Education Project is designed in line with the Kenya Basic Education COVID-19 Emergency Response Plan (Ministry of Education, 2020). The project recognizes that there is no single solution that is suitable to ensure learning continuation following the disruption of face-to-face learning, and some schools have therefore decided to fund the training of teachers and others have developed or enhanced related-infrastructure. A new ICT Hub at the Machakos High School was built to enable the recording of lessons and their sharing with other secondary schools. For example, one teacher can teach through technology as colleagues move around classes helping students in that subject (key informant interview, 2021). This is one solution that can help with the high enrolment and teacher shortages in some schools.

Funds have also been allocated to train teachers in interactive remote learning methodologies with the aim of supplementing the training carried out under the DLP. The TSC and the ICT Authority have reviewed and expanded training content to reflect the new roles of teachers in supporting remote learning during the COVID-19 crisis and beyond. By May 2020, approximately 101,701 teachers and CSOs had been trained in interactive remote learning methodologies. The TSC and the ICT Authority, using the revised training content, trained a total of 250,000 head teachers (and/or their deputies) and plan to train 165,000 teachers and CSOs. The KICD has also developed new content for teacher training, which will be made available free-of-charge through Elimika, an online training portal for

¹³ Ministry of Education, "[Kenya GPE COVID-19 Learning Continuity in Basic Education Project](#)".

teachers and education stakeholders, which is part of the Kenya Education Cloud and offers training and online courses, for example on ICT integration and the CBC.¹⁴ Two self-paced online courses for teachers focusing on curriculum delivery using ICT have been rolled out through Elimika. Although the courses are not mandatory, over 5,000 teachers have enrolled for the Elimika ICT integration course.

The Ministry of Education hopes that the project will help build a more resilient education system that will be able to withstand shocks, such as those caused by the COVID-19 pandemic. The project end date was December 2021, and its achievements have therefore yet to be determined.

5.3. Better Education for Africa's Rise II Project (BEAR II)

The COVID-19 pandemic affected the TVET sub-sector in Kenya in the same way as other education sub-sectors. Following the disruptions in the provision of training caused by the closure of education institutions, the Government instructed the State Department for Vocational and Technical Training to transform its approach to education delivery and to provide instruction and training through digital, online and remote means. As in the other sub-sectors, infrastructure and capacity deficits were among the key obstacles to online and remote learning. Some of these deficits are attributable to poverty and gaps in access due to socio-economic factors.

Collaboration between institutions, students and enterprises is central to TVET. The strong emphasis placed on the acquisition of specific practical occupational skills created particular challenges in TVET during the pandemic. As practical skills are often acquired through learning-by-doing in school-based workshops and laboratories, or through hands-on experience in the work environment, the COVID-19 response measures, particularly workplace and school closures and restrictions on movement, complicated the attainment of practical experience.

Interviews with key informants emphasized that teachers and trainers need to be equipped and trained to deliver education and training online or from a distance, and that TVET institutions have to be equipped to provide capacity-building opportunities for teachers. Moreover, access for teachers and learners to devices, electricity and the internet needs to be improved. Telecom companies should subsidize the costs of internet bundles, which are currently prohibitively expensive for many teachers and learners. Despite these challenges, many TVET staff continue to support their students through cell phone consultations and by providing connections to mentors, employers and business opportunities. Although many teachers were unwilling to embrace ICT at first, arguing that skills cannot be taught online, in the longer run more teachers are starting to integrate ICT into teaching and learning (key informant interview, 2021).

¹⁴ For more information, see KICD, [Elimika](#).

The importance of digitalization in the TVET sub-sector pre-dates the pandemic, but has since accelerated. For example, the Better Education for Africa's Rise II Project (BEAR II) is a joint initiative by UNESCO and the Republic of Korea that aims to improve the relevance, quality and perception of TVET systems. Implemented in five countries, including Kenya, from 2017 to 2021, it draws on the knowledge and experience of the BEAR I project, which supported TVET systems in five Southern African Development Community (SADC) countries from 2011 to 2016 (UNESCO, 2017). The BEAR II project focuses on enhancing the capacity of the TVET system to ensure the employability of trainee graduates in the environmental technology sector (including solar photovoltaic energy) in Kenya. The project's objectives include enhancing the capacity of TVET trainers to facilitate online learning and content development. TVET trainers will eventually train TVET lecturers in remote teaching and learning.

With a view to facilitating the successful resumption of learning, the Ministry of Education, working with BEAR II consultants, adopted a two-pronged approach consisting of two pathways. The first, the Restart Pathway, immediately helps all TVET trainers and institutions to resume learning using commonly available video conferencing tools and instructional methods suited to that medium. The objective of the second, the Consolidation Pathway, is the proper delivery, management and quality assurance of learning online, which can be achieved through a Learning Management System (LMS). This led to the development of a national LMS and the consolidation of Open Distance and e-Learning (ODeL) (key informant interview, 2021).

According to the State Department of Vocational and Technical Training, the implementation committee of BEAR II has set the following objectives (some of which have already been achieved):

- ▶ a policy framework has been developed for ODeL in TVET;
- ▶ a fully functional LMS has been developed to promote digital learning. A nationally accessible [Moodle LMS](#), hosted and managed by Kenya Technical Trainers College (KTTC), has been completed;
- ▶ the capacity of TVET trainers to facilitate online learning has been developed;
- ▶ the capacity of TVET trainers for the development of guidelines, manuals and training materials has been developed. More specifically, 116 TVET trainers, selected through the Kenya Association of Technical Training Institutes (KATTI), have been trained over a week-long course. An e-learning course on the preparation of guidelines, manuals and training materials has been developed;
- ▶ the capacity of the KTTC ODeL Department to develop guidelines, manuals, training materials and applications, and to manage the LMS, has been developed. Five members of the KTTC ODeL Department have been trained;
- ▶ a repository of OERs has been developed. An open online repository of OERs and links to content and TVET applications has been provided by partners;
- ▶ digital content has been adapted from existing training materials to suit online delivery and the OERs have been customized for use in TVET.

The national LMS to promote digital learning is designed to be used in two forms: as a centralized LMS, hosted by KTTC, through which students, trainers and TVET institutions can undergo training; and as a downloadable, “white-labelled” LMS, which TVET institutions can clone and make their own. In addition to the LMS, an ODeL policy and platform is being developed to ensure the training and assessment of learners during and after the pandemic. The capacities of TVET trainers for ODeL will be developed in this context.

In October 2020, 116 participants completed an online training course on content development. They were provided with technical support during the training, which focused on developing content for the course units they teach on the LMS. The training resulted in the development of 22 course units for online learning by TVET trainers (for Solar PV Level 3 and Diploma in Civil Engineering Module 3) (key informant interview, 2021).

According to UNESCO (2021b), approximately 600 trainers have been trained in online approaches to TVET training. In August 2021, UNESCO transferred ICT equipment, including computers, interactive boards, projectors, microphones and solar panels, to six TVET institutions to realize digital learning. As indicated by UNESCO (2021b), “[t]hese institutions will be rolling out the implantation of solar PV curricula (Level 6 and Level 3) during the course of the year, and the equipment is expected to provide platforms for digital learning ensuring learning continuity and increasing accessibility of TVET training despite COVID-19 disruptions.” The overall aim of BEAR II is to leverage digital technologies, not only in response to COVID-19, but also to expand and diversify the way in which TVET training is carried out in Kenya. The ultimate goal is strong pedagogical use of ICT for teaching, learning and management in the TVET sub-sector.

According to KATTI, 66 per cent of TVET institutes have access to high-speed internet and sufficient computing capacity to run training programmes. These institutions, with some personal health and safety measures for instructors, could therefore run training programmes online. The main challenge is the expertise and availability of digital content and applications to support the training programmes.¹⁵

The State Department of Vocational and Technical Training, in partnership with Google and the Ministry of ICT, Innovation and Youth Affairs, is preparing to provide support to technical institutions for internet connectivity and has already identified the TVET institutions that will benefit from the initiative (Gichohi and Osiemo, 2021). The Kenya National Qualifications Authority (KNQA) is also developing a framework that will enable recognition of prior learning to create a pathway for progression in skills training. The framework will have a bearing on TVET programmes and curriculum development, as well as on university education.¹⁶

¹⁵ Obtained from a KATTI presentation at KTTC on 3 September 2020.

¹⁶ Obtained from a KATTI presentation at KTTC on 3 September 2020.

▶ 6. Recommendations and ways forward

Kenya has a young population and improving their learning outcomes through meaningful development in the education sector depends on the quality of the teaching workforce. The changing learning environment, in which students have far more access to information through the internet, calls for a refocused approach to engage students in more meaningful learning experiences. The ICT infrastructure that is in place will play a significant part in determining the extent to which educational objectives are attained.

Teachers remain central to the provision of guidance for learning, including through technology. Teacher shortages are common in many schools (both public and private) in Kenya, limiting appropriate teacher-student engagement and thereby negatively affecting learning. Finding a more holistic solution to education challenges means that teacher shortages will have to be addressed in parallel with the integration of technology.

Based on the key informant interviews and literature review, the following recommendations are proposed:

- ▶ **Actualize teacher resource sharing:** the Ministry of Education should begin a process of identifying and empowering teachers with ICT skills in different subjects who can periodically synchronize their class lessons with students in other schools in different locations, or record lessons to be shared with students in remote areas, with a view to addressing teacher shortages. This is currently being piloted by some secondary schools, which have established an enabling ICT infrastructure to address teacher shortages arising from the 100 per cent transition policy. According to KESSHA, this strategy should not be limited to intra-school exchanges and should instead be scaled up to other schools, thereby increasing the inclusion of underserved communities in mainstream education (key informant interview, 2021).
- ▶ **Strengthen the administration and management of project/programme funds:** the funding allocated for teacher training seems to be disbursed either late or fails to reach the designated training venues. This frustrates training efforts and may slow teacher training and lead to some projects stalling. It would be prudent for the cost of teacher training not to be borne by schools or individual teachers. The proper allocation, utilization and management of funds needs to be enhanced to guarantee the attainment of teacher training goals. The involvement of funding agencies and teachers' organizations can increase the transparency and monitoring of fund allocation.
- ▶ **Provide ICT and training to TVET teachers:** the COVID-19 pandemic called for the rapid adjustment to and adoption of technology in the TVET sub-sector. This proved difficult without access to adequate and appropriate ICT infrastructure and skills for distance learning. The Government will have to work with other stakeholders, including in the

private sector, to fund the required digital infrastructure and training of teachers in the TVET sub-sector to ensure that education and training are relevant and responsive to economic and societal needs.

- ▶ **Promote lifelong learning for teachers:** with the digitalization of any sector, continuous learning becomes a necessity to take full advantage of the resulting dynamism and continuous innovation. This also applies to the education sector in Kenya, especially as the CBC becomes fully operational. Teachers will need to share experiences in workshops and seminars and keep up-to-date with changing technologies if they are to remain relevant and effective, particularly as students become more technologically knowledgeable through their interaction with digital devices both within and outside school. Blended learning will only be possible if technologies are integrated properly in teaching and learning. In the TVET sub-sector, tutors will not be able to contribute meaningfully to national development if they lag behind technological changes and fail to produce graduates with skills that respond to labour market needs.
- ▶ **Improve conditions in private schools:** the level of engagement and cooperation between the Government and the private sector, including private schools, should be scaled up. During the period when the cessation of learning in all institutions was ordered in Kenya, private schools could not pay their bills (rent, electricity and water) or teachers' salaries for some time. Some teachers were forced to seek employment in other sectors or engage in private businesses. Ultimately, not all teachers resumed duty once face-to-face teaching and learning was reinstated (Barasa, 2021b), which may mean that some highly experienced and skilled teachers were lost.

References

- Atambo, Anne. 2021. *Landscape Report on Digital Education in Kenya*. Helsinki: Fingo.
- Barasa, Peter. 2021a. *Digitalization in Teaching and Education in Kenya*. Digitalization, the Future of Work and the Teaching Profession project. Geneva: ILO.
- . 2021b. *Digitalization in Teaching and Education in the Context of the COVID-19 Pandemic: Kenya*. Digitalization, the Future of Work and the Teaching Profession project. Geneva: ILO.
- Charo, Ruth Karimi. 2021. “[Disclosable Version of the ISR – Kenya GPE COVID-19 Learning Continuity in Basic Education Project – P174059 – Sequence No: 02 \(English\)](#)”. Washington, D.C.: World Bank.
- Gichohi, Erastus, and Calvin Osiemo. 2021. “[TVETs Set to Receive Internet Connectivity](#)”. *Kenya News Agency*, 24 September 2021.
- Government of Kenya. 2021. “[Highlights of the Proposed 2021-2022 Kenyan Budget on the Technology Sector](#)”. KICTANet.
- . 2019a. *National Information, Communications and Technology (ICT) Policy*. Nairobi: Ministry of Information, Communications and Technology.
- . 2019b. *Sessional Paper No. 1 of 2019 on A Policy Framework for Reforming Education and Training for Sustainable Development in Kenya: Towards Realizing Quality, Relevant and Inclusive Education and Training for Sustainable Development*. Nairobi: Ministry of Education.
- . 2012. *Sessional Paper No. 14 of 2012 on Reforming Education and Training Sectors in Kenya*. Nairobi: Ministry of Education and Ministry of Higher Education, Science and Technology.
- Grace, Brightus, and Moffin Opilio. 2021. “[ICT Ministry to Launch Schoolnet Programme in Schools](#)”. *Kenya News Agency*, 22 September 2021.
- ICT Authority. n.d. “What is Digital Literacy Programme?”. Ministry of Information, Communications and Technology.
- Kenya Institute of Curriculum Development (KICD). 2019. *Report on 3rd National Conference on Curriculum Reforms*.
- . 2017. *Facilitator's Training Manual for Early Years Education Curriculum*.
- KTN News. 2021. “[Ministry Keen on Ensuring No Child is Left Behind as 17 Counties Achieve 100% Transition Policy](#)”. 9 September 2021.
- Mbaka, James. 2017. “[Education: All that Parents Need to Know Ahead of 2018](#)”. *The Star*, 30 December 2017.
- Ministry of Education. 2020. “Stakeholder Engagement Plan: Learning Continuity in Basic Education Project”. State Department of Early Learning and Basic Education.

- Myers, Christina, Tom Kaye, and Abdullah Khalayeh. 2021. "[Let's Read – How Tusome Leveraged EdTech to Improve National Learning Outcomes: Governing Digital Transformation: Improving Outcomes in Education Systems](#)". Case study, EdTech Hub.
- OECD. 2021. *Education at a Glance 2021: OECD Indicators*. Paris.
- Omondi, Michael, and Faith Kinyanjui. 2021. "[Gov't Keen to Address Dropout in Schools](#)". *Kenya News Agency*, 21 October 2021.
- Otunga, Nabwala Ruth, Isaac Ipara Odeo, and Peter L Barasa (eds). 2011. *A Handbook for Curriculum and Instruction*. Eldoret: Moi University Press.
- Teachers Arena. 2021. "Programme for Training Primary and Secondary School Teachers on RLM". 5 June 2021.
- Teachers Service Commission (TSC). 2021. *Remote Learning Methodologies: Manual for Teachers*.
- . 2020. *Information Communication Technology (ICT) Policy*.
- . 2019. *Strategic Plan for the Period 2019-2023*.
- United Nations Educational, Scientific and Cultural Organization (UNESCO). 2021a. "[Launch of the UNESCO 2021 Kenya National Study Report on Out of School Children](#)". 28 October 2021.
- . 2021b. "[Six Kenyan TVET Institutions Receive ICT Equipment from BEAR II Project](#)". 23 August 2021.
- . 2017. "Better Education for Africa's Rise II: Promoting and Transforming TVET in Eastern Africa".
- . 2000. *Report on the All sub-Saharan Conference on Education for All, Johannesburg, 6-10 December 1991*.
- United Nation Children's Fund (UNICEF). 2021. "[New Drive Launched to Get 250,000 Out-of-School Children Back to Class in 16 Counties](#)". 19 October 2021.
- Uwezo. 2020. *Are Our Children Learning? The Status of Remote-learning among School-going Children in Kenya during the Covid-19 Crisis*. Remote Learning Survey Report. Nairobi: Usawa Agenda.

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