SECONDARY EDUCATION IN AFRICA: PREPARING YOUTH FOR THE FUTURE OF WORK

JULY 2020

mastercard foundation

COVER: Secondary school students participate in a business class in Tanzania as part of a Mastercard Foundation partnership with Fundación Paraguaya.

PICTURED: A teacher uses a lab kit in an African Institute of Mathematical Sciences Teacher Training Program as part of the Mastercard Foundation Leaders in Teaching program in Rwanda.

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SECONDARY EDUCATION IN AFRICA:
PREPARING YOUTH FOR THE FUTURE OF WORK
MASTERCARD FOUNDATION TEAM

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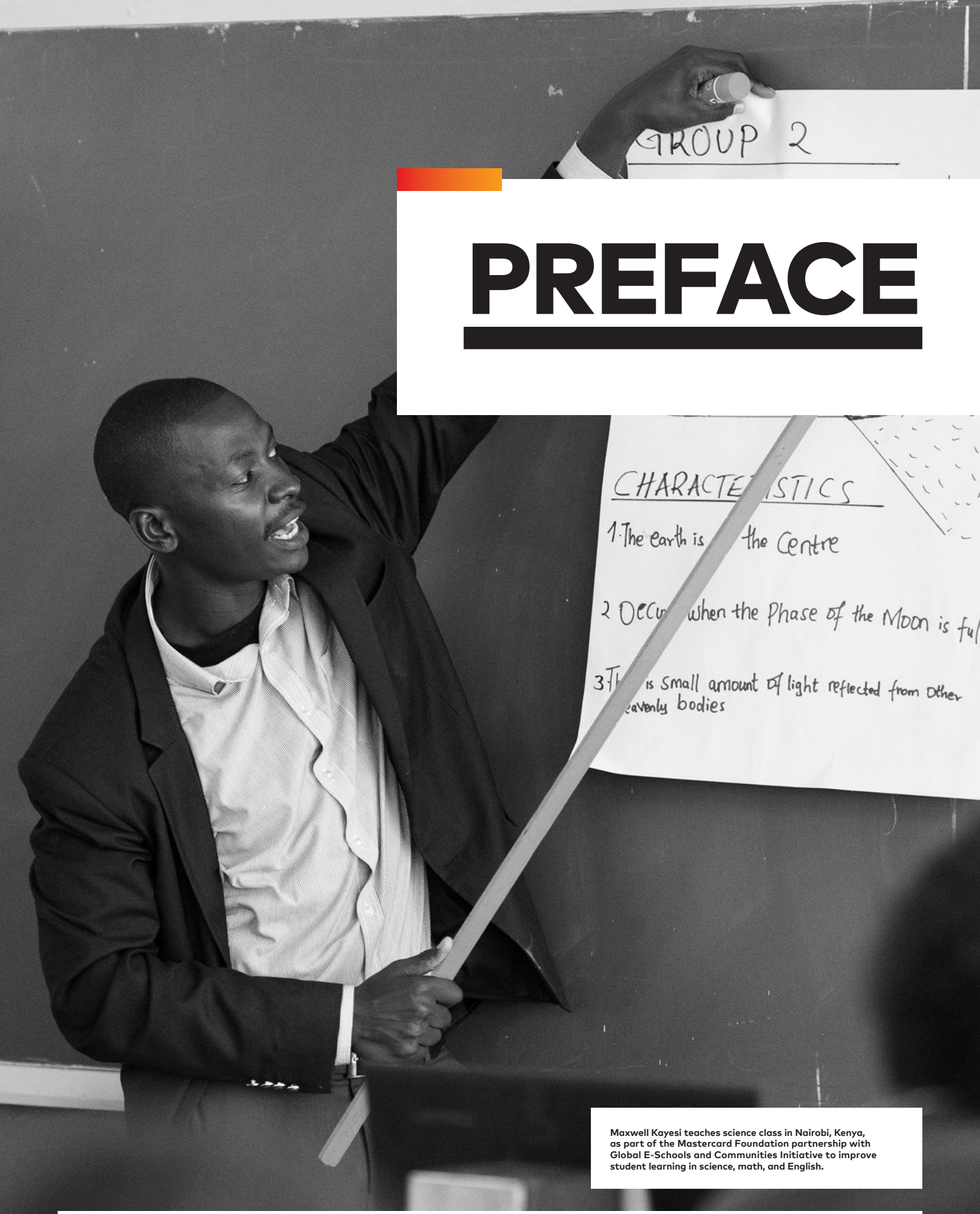
A student participates in class as part of a Mastercard Foundation partnership with STiR Education in Uganda.

PREFACE



Maxwell Kayesi teaches science class in Nairobi, Kenya, as part of the Mastercard Foundation partnership with Global E-Schools and Communities Initiative to improve student learning in science, math, and English.

Africa's greatest resource is its young people. The continent is the youngest in the world and by 2075, the youth population in Africa will surpass that of India and China combined. Africa's future will depend on how well it harnesses young people's capacity and develops their potential. Great progress has been made in ensuring the continent's youth have access to primary education. That has been achieved faster than many other developing regions at comparable starting points. Though learning levels remain a major challenge, that achievement was driven by a combination of political commitment to education, increased allocation of budgetary resources to primary education, strong economic growth, and the support of international donors.

Secondary education is the next frontier. With rising primary completion rates, a growing share of a growing youth population is progressing into secondary education. Enrolment across the continent is expected to double by 2030, representing an additional 46 million students at the secondary level over the next 10 years.

Secondary education is also the platform from which the majority of young people will enter the workforce. The changing nature of work is placing a premium on skills that help young people be adaptable, resilient, and creative problem-solvers. More than ever, this generation of students will need to solve some of the greatest challenges facing Africa's future, including climate change, food security, migration, and peace.

Shifting secondary education from an elite system for a select few to a system open to all youth, and one that provides the skills and competencies youth need to thrive in a rapidly changing world of work, is an unprecedented but vital challenge. That challenge is even more pressing in light of COVID-19. At the height of the COVID-19 pandemic, according to data compiled by UNESCO, over 250 million children and youth were out of school in Sub-Saharan Africa. That is in addition to the 97 million children and youth in SSA not enrolled in the education system prior to the COVID-19 pandemic. Concerns regarding rolling back enrolment, completion and learning gains and issues of equity, abound. Overnight, education systems have shifted to distance learning, the impact of which is unknown. With economic contraction, competition within governments for scarce resources will be amplified. Questions are arising around the "new normal" in education and what that means for the design and delivery of secondary education and the teaching profession. What is clear is that business as usual will not suffice; significant systems reform and innovation are needed.

This report focuses on the role of secondary education in ensuring youth acquire the skills, knowledge, and competencies necessary to succeed in a dynamic and globalized labour market, where trends of digitalization and automation are on the rise. Drawing on a wide range of research conducted by scholars in Africa and globally, the *Secondary Education in Africa* report examines progress and provides policymakers and other education stakeholders with examples of promising practices from across the region and beyond as they seek ways to improve access to quality, relevant secondary education. It examines factors that facilitate reform and innovation at all levels of the education system.

This report is not intended to be a blueprint. Rather, its objective is to highlight the urgency of the need to improve education systems and to contribute to the dialogue on how to ensure Africa benefits from the potential of its growing population of young people.

We hope this report supports policymakers, the private sector, educators, philanthropists, and young people themselves to envision secondary education in a post-COVID-19 world and to consider actionable recommendations for getting there. By providing evidence on promising practices across a range of areas, such as curriculum reform, teacher training, flexible approaches, and innovations in financing, we trust these examples of positive change and sustained progress, by Africans and for Africans, will light the way.

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LETTER FROM THE PRESIDENT AND CEO

As a global pandemic forced the temporary shut-down of schools around the world, it opened up greater debate on what, where, when, and how children should be learning. While those questions are not necessarily new, they take on a new urgency in our current context. That is especially true in Africa, a continent whose future is inextricably bound to the present challenges and opportunities facing its young people. Africa's young people were already on track to come of age in a world markedly transformed by digitization, automation, and technological advancements — developments that will only be accelerated by COVID-19. Arguably, the question of how best to equip those young people with the skills they need to eventually find, perform, and/or create dignified work in a dynamic world has never been more important.

Yet the answers aren't easy. A range of interventions are needed. What is overwhelmingly clear, however, is that strategies for adapting and strengthening secondary education must be a core part of our overall response.

Today, thanks to decades of concerted effort, access to primary education is almost ubiquitous on the continent. While there is more to be done to translate that into improved learning outcomes, the success in scaling primarily school access is instructive. By harnessing the same kind of multilateral commitment, partnership, and leadership, it is possible to deliver improved secondary education. And at a time when secondary schooling is the last training most young people in Africa receive before embarking on work, doing so is critical.

This report aims to be a starting point for the kind of large-scale collaboration required. The recommendations found herein are even more relevant and the urgency even more pressing, in the face of the global pandemic. As highlighted in this report's pages, there are many areas that demand our collective attention. There is certainly a need to get more young people enrolled: In Sub-Saharan African, 65 million secondary school-age youth are not engaged in secondary schooling. Of course, with more students in school, we inevitably require more teachers in class. With secondary school enrolments expected to almost double by 2030, over 10 million additional secondary school teachers will be needed.

Yet ultimately, the conversation cannot end with access. We have to reimagine existing systems to accommodate the needs of a diverse cohort of students and provide flexible pathways into, between, and beyond secondary education. At the same time, we need to adapt curricula to prepare young people for a world that places a greater premium on skills like critical thinking, problem-solving, and digital literacy. Secondary education must be within reach — but it also needs to be relevant.

In 2020, over a hundred million youth in Africa face unemployment. At the same time, there is a pipeline of millions more young Africans heading into the labour market. Whether they will be ready to see and seize the opportunities of tomorrow will depend in large measure on whether we are ready to listen and act today to prepare them for the future.

I believe we are. In fact, this report is the product of faith: a deep-seated optimism about the future of the continent, an abiding confidence in the wide network of well-meaning policymakers and partners that are always ready to make a difference, and a belief in the boundless, untapped potential of young Africans. With the right training, young people can drive the social and economic transformation that the continent aspires to — and propel all of us into the African century.

Reeta Roy

A student in an entrepreneurship workshop at African Leadership Academy in South Africa. Photo courtesy of African Leadership Academy. Reproduced with permission.

EXECUTIVE SUMMARY

An ICT class in Rwanda as part of the Mastercard Foundation Leaders in Teaching program.

WHY SECONDARY EDUCATION? WHY NOW?

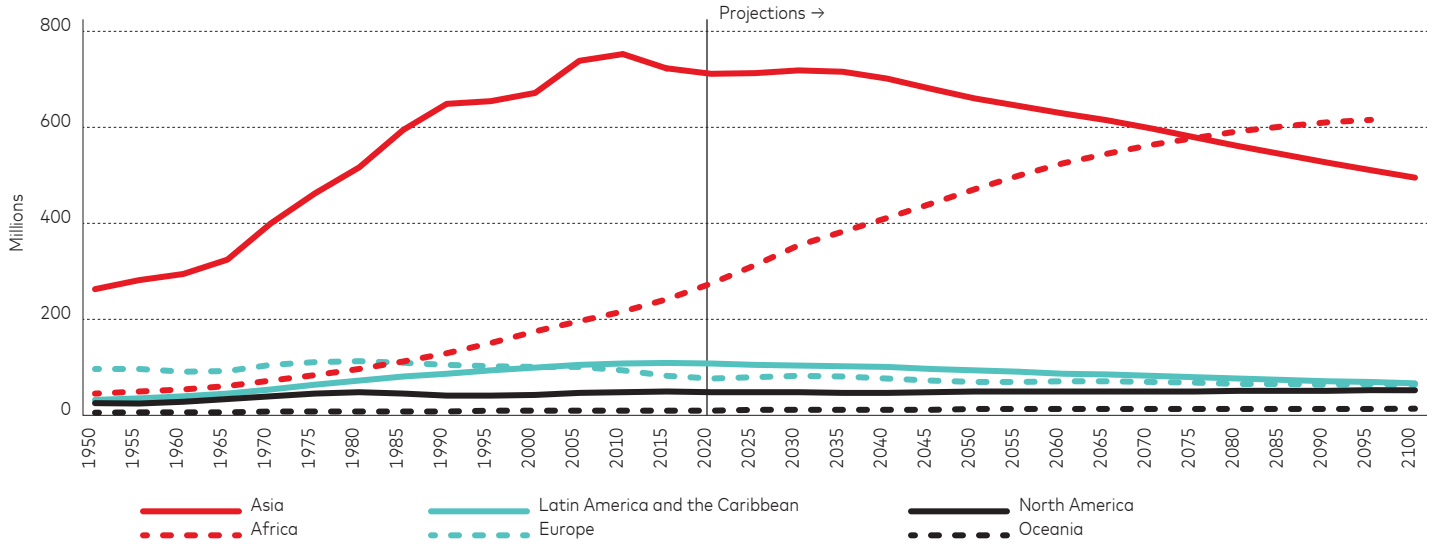
The global workforce will increasingly be African. Africa is currently the youngest continent in the world and will continue to be for the next several decades. By 2075, the youth population in Africa will surpass that of India and China combined.[1] Africa's young and growing population positions the region well to realize the benefits of a demographic dividend. Secondary education that prepares youth, and in particular young women, with the skills they need to enter the global workforce will play a critical role in unlocking that potential.

Ensuring that Africa's young people secure employment or can create their own livelihoods is one of the most significant tasks facing African policymakers today. Young people will need to be prepared with the knowledge and skills sought by employers and to succeed as entrepreneurs, and the majority of youth will need to find work in the informal sector for the foreseeable future.

Digitalization, automation, and technological advances are changing the nature of work globally, including in Africa. Those trends will increase uncertainty and the pace of change, raising the premium on skills that help young people be adaptable, resilient, and creative problem solvers. Endowing youth with those skills will help drive productivity gains in both the formal and informal sectors, improving livelihoods and potentially spurring economic transformation.

Secondary education will be a key platform for young people in Africa to enter the world of work. The vast majority of youth in Africa leave the education system and transition into the world of work before entering tertiary education. Of the 98 percent of young people who enrol at the primary level in Sub-Saharan Africa, only nine percent make it to tertiary education and only six percent graduate.[2] While preparing students for tertiary education remains critical, secondary education systems will increasingly be called upon to prepare youth to earn an income and lead meaningful lives as citizens of a global world.

AFRICA IS THE ONLY REGION WITH A GROWING YOUTH (15–24) POPULATION



Source: UN Department of Economic and Social Affairs (UN-DESA) Population Division database, accessed August 2019.

Secondary education can contribute to broad-based economic growth through improved labour productivity. That is particularly so in the informal sector, which is characterized by vulnerable employment in household enterprises that face significant obstacles to growth, such as access to finance, markets, technology, and critical skills. Further, the provision of relevant skills through secondary education is crucial in order to ensure young Africans are well-equipped to take advantage of new opportunities in an increasingly digital, automated, and connected world.

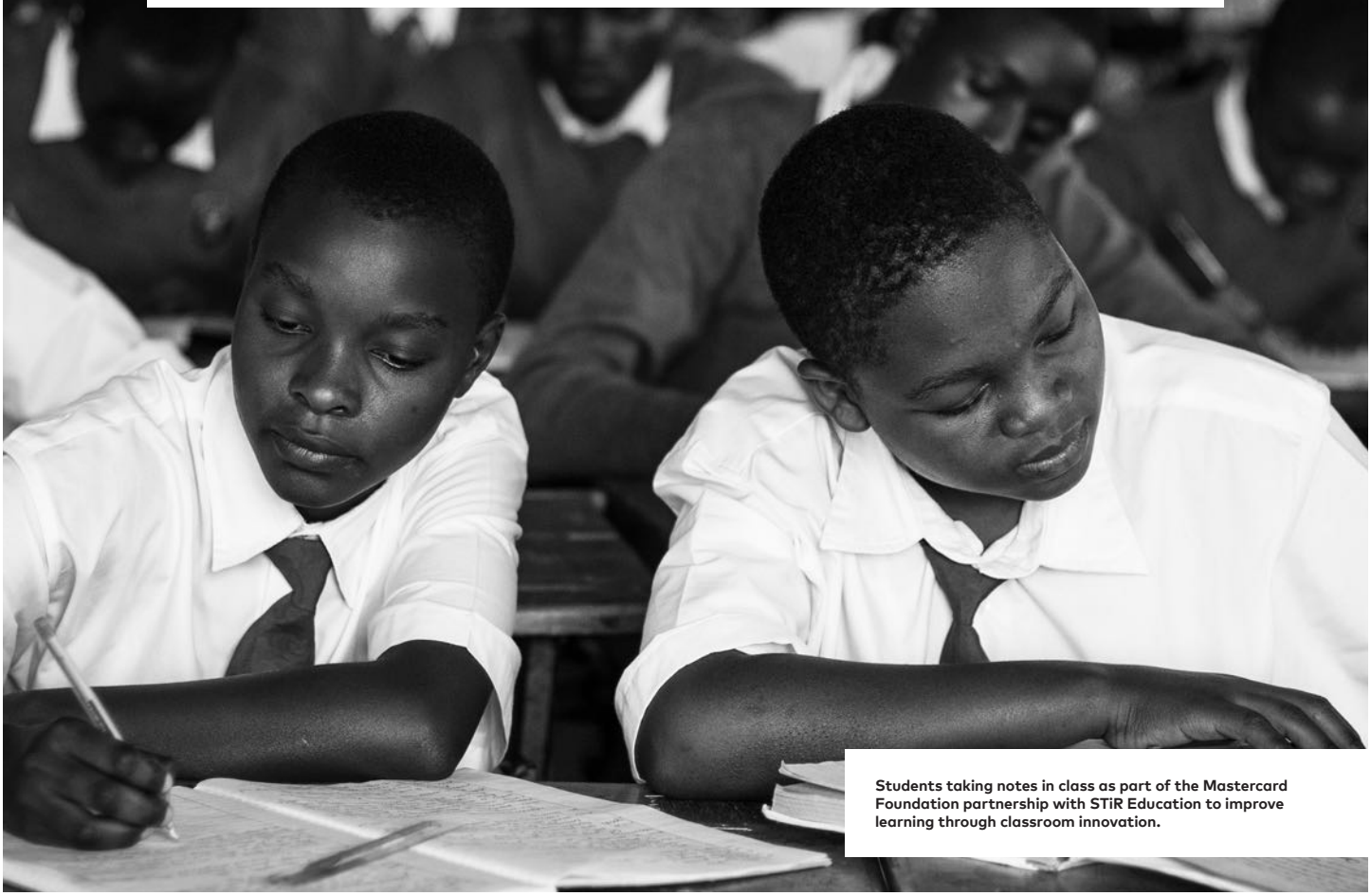
Secondary education is central to achieving the African Union's Agenda 2063 and the 2030 Sustainable Development Goals. Investments to improve education and to stimulate employment will allow this generation of young people to play a pivotal role in realizing the vision of economic transformation laid out by today's African leaders — a vision of inclusive growth driven by investments in human capital, science, technology, and innovation.

The challenge of expanding access to high-quality, relevant secondary education today is unprecedented, but if investments are made now, secondary education has transformational potential. Due to widespread success at increasing enrolment in and completion of primary school, a growing share of a growing population is reaching a stage where they will be ready to transition to secondary. That expansion of secondary education systems will take place in a context where there are still gaps in enrolment and low learning achievement at the primary level, significant population growth, and increasingly constrained fiscal space due to economic headwinds in the region. Those factors underline the urgency of identifying promising approaches to expanding access to high-quality, relevant secondary education in Africa. Building on the success of African governments in expanding access to primary education, opening doors to quality, relevant education at the secondary level is the next frontier. Now is the time to rethink what skills young people require, and to intentionally design secondary education systems with those skills in mind.

IMPROVING THE RELEVANCE OF CURRICULA TO BUILD KNOWLEDGE AND SKILLS

As African economies change, young people need knowledge and skills that respond to the trends and challenges shaping the future of work. Skills that are essential include foundational literacy and numeracy, 21st-century skills, digital skills, and skills and knowledge in the STEM fields, which underpin innovation and are an excellent vehicle for developing critical thinking and problem-solving abilities. Technical skills will be needed throughout the formal and informal sector. Entrepreneurship skills are also critical as they can support youth to create their own employment and thrive in a largely informal economy. Work-readiness skills can enable young people to make effective transitions to, and maintain, dignified and fulfilling work.

Employers in both the formal and informal sectors increasingly demand workers with digital literacy and 21st-century skills such as critical thinking, communication, creative problem-solving, resilience, and teamwork. A lack of 21st-century skills is reported as an increasingly significant constraint to business growth and economic transformation.[3] Developing those skills will also have positive effects for society overall, as the skills needed for work and those required for learning, personal empowerment, and active citizenship are increasingly converging.[4]



Students taking notes in class as part of the Mastercard Foundation partnership with STiR Education to improve learning through classroom innovation.

Many African governments have taken steps to foster the development of more relevant skills and knowledge through competency-based curriculum reform or have revised curricula to increase their relevance to national development aspirations. Reforms typically include changing the weight given to certain subjects (such as science, mathematics, and world languages), integrating important contemporary issues across the curriculum, such as environmental sustainability or peace and tolerance, and increasing provision of vocational subjects. Avoiding curriculum overload in the reform process, as well as making complementary investments in, for example, new learning materials and teacher training, are critical to promoting successful curriculum reform.

Extracurricular and co-curricular activities are an important and often-overlooked mechanism to promote the development of 21st-century skills. Consultations with young people and teachers carried out for this report stressed the transformative potential of extracurricular and co-curricular activities in the lives of young people. Further, there is evidence from OECD countries that extracurricular and co-curricular activities play a particularly important role in improving social and academic outcomes among marginalized young people.[5]

Effective education systems align curriculum, pedagogy, and assessment, so that different elements of the system work towards a common set of educational goals. In much of Africa, curriculum reforms have preceded changes to assessments. Reforming assessments so they provide insights into student learning, test for the application rather than acquisition of knowledge, and underpin improvements to teaching practices to support learning across the range of skills are vital next steps.

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ENSURING A HIGHLY SKILLED TEACHING WORKFORCE

Over 10 million additional secondary school teachers will be needed by 2030 to meet demand for secondary education on the continent.[6] Due to the rapid expansion of education systems, many teachers lack necessary qualifications. Teachers need to be better prepared not just in subject matter knowledge, but also in the types of pedagogies that are shown to impart 21st-century skills and in the integration of digital skills throughout the teaching and learning process.

Ensuring that high-quality teachers are in classrooms is one of the most strategic investments a country can make to enable all students to develop the skills they will need in their working lives.[7] With competency-based curricula, which depend on teachers skilled in learner-centred and interactive teaching methods, the quality of teaching is even more important than for curricula focused on the acquisition of knowledge.[8] A significant transformation in teacher recruitment and education is therefore needed to ensure that young people receive high-quality, relevant secondary education.

The world's best education systems have succeeded in making teaching a high-status profession, which attracts students with strong academic backgrounds and motivation to teach and to develop their practice to high professional standards. By contrast, many African education systems struggle to attract well-qualified candidates into a profession that has declined in status and relative pay in recent years, and which is perceived to have relatively limited promotion prospects.[9]

Improving teaching quality will lead to a virtuous cycle with investment in good-quality pre-service education for teachers, alongside strong support for new and existing teachers, and effective school leadership, leading to improved learning outcomes. That will in turn enable efficiencies due to reduced grade repetition as well as a better-educated cadre of new entrants to the profession. Improving the quality of pre-service education is therefore a critical strategic intervention point to boost the quality of teaching and of students' learning and skill development.[10]

PROVIDING FLEXIBLE PATHWAYS AT SCALE

Many secondary-school-age young people do not transition through their education in a linear manner. Sixty-five million young people of secondary school age are currently out of school in Sub-Saharan Africa.[11] Young people who face economic disadvantages often experience significant pressure to leave the education system to seek work and help support their families. Those affected by conflict or climate change often must interrupt their education to seek safety or new livelihoods. Young women face additional pressures that can inhibit their ability to complete school.

Few pathways, if any, exist between TVET and general education in most African countries. Once a student has entered a technical track, during or after lower secondary school, there are often few opportunities for them to re-enter general secondary school or gain entrance to a non-technical university. That rigidity contributes to the lower status of TVET in the eyes of students and parents. TVET is often considered a "dead-end choice," an option for those who failed in general education. Pathways can be created through "flexible admission procedures and guidance, credit accumulation and transfer, bridging programs and equivalency schemes that are recognized and accredited by relevant authorities."[12]

Alternative education and training programs that cater to out-of-school youth, or to those who prematurely leave the education system, are limited in number and scope, and should be aligned with mainstream curricula to facilitate pathways back to the formal system. While important in helping to fill a gap, and valuable for their ability to innovate in ways to teach 21st-century skills and other learning approaches, few such alternative programs exist at sufficient scale to accommodate the large numbers of out-of-school youth.

By mapping and benchmarking skills acquired, national qualifications frameworks (NQFs) have the potential to enable youth to move between informal training and formal education. NQFs can support a more modular approach to education, whereby youth can train for and be accredited in the specific skills required at a given point in their school-to-work journey, when the time and financial resources are available to them, and such that they can build up their portfolio of credentials over time. By incorporating a Recognition of Prior Learning system, NQFs can also enable validation of the technical skills of informal sector workers, which can boost their job opportunities and chances to gain increased remuneration, as well as their options to undertake further education and training.[13]

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REFORMING EDUCATION SYSTEMS TO PREPARE YOUNG PEOPLE FOR THE FUTURE OF WORK

Strengthening and reforming education systems to achieve the promise of quality, relevant education for all is a complex, long-term process requiring sustained commitment and investment. Yet, while difficult, it can be done. Case studies from Sierra Leone and Senegal demonstrate impressive reforms that are already bearing fruit in the form of improved attendance, completion, and equity. Sustained progress to improve learning outcomes has been more difficult to achieve.

Evidence shows several practices are crucial for facilitating successful reform. Those include: vision and political will at the highest levels as demonstrated by clear policies and provision of the resources needed to implement reforms; broad coalitions supporting reform efforts; focused attention on equity gaps; partnerships with the private sector, civil society, and international institutions; use of data in decision-making; and setting clear roles and responsibilities while holding actors accountable for outcomes.

The fast pace of social and economic change today means that innovation that seeks to reinvent and transform secondary education will be increasingly required. In addition to steady investment and political commitment to reform over several decades, finding ways to embed experimentation and innovation to promote scalable, catalytic interventions will be necessary. It is important to recognize, however, that innovation encompasses incremental changes, adaptations, or improvements, as well as more radical departures from current practice.

Supporting governments to incubate and drive innovation in education may improve the potential for new ideas to be mainstreamed and reach scale. Improving government capacity to directly pilot, evaluate, and scale innovations is one approach. Another is for governments to create a more conducive environment for innovation, including: leadership that clearly supports innovation; a culture of openness and space to fail; innovation hubs within or outside of ministries of education; partnering with non-state innovators; learning networks; and adequate resourcing. Moving from testing ground to scale is critical for innovation to have systemic impact.

Transforming secondary education to prepare young people for the future of work will involve a broad range of reforms, some likely more politically popular than others. Those dynamics will play out differently in different countries, according to the overall political discourse, the economic context, and the current nature of the education system, among other factors. Gaining traction for reforms will require a multi-pronged approach, and could include: inspired and sustained high-level leadership from both senior politicians and civil servants; commitment to sustaining a clearly defined set of reforms (rather than changing course with changes of political leadership or donor fashions); engaging stakeholders in reform processes through initial policy dialogue, national skills strategies, and periodic review; and addressing capacity and resourcing obstacles. Active engagement from stakeholders who can have a significant influence on whether reform takes root, such as teachers' unions, should be prioritized in the design and implementation of reforms from the outset.

A teacher during a virtual science class in Rwanda as part of the Mastercard Foundation Leaders in Teaching program.

FINANCING WITH EQUITY

Ensuring that all young people in Sub-Saharan Africa have access to secondary education that prepares them for the future of work will require substantial new resources. The Education Commission has estimated that a total investment of US$175 billion per year, or 4.5 percent of GDP, is needed between now and 2050 for Sub-Saharan Africa to reach nearly universal enrolment in lower and upper secondary education. That is substantially more than the expenditure of $25 billion, or two percent of GDP, spent on lower and upper secondary education in Sub-Saharan Africa in 2015.[14] In addition to expanding resources available to education, efforts should be made to find efficiencies, crowd in other actors, and make more strategic use of official development assistance. Yet, investment at the secondary education level must not be at the expense of primary education, where enrolment has expanded but is still not universal, and serious learning challenges persist.

A growing number of alternative and innovative financing mechanisms are emerging across Africa to marshal significant new resources to the education sector, particularly from the private sector. These include existing experiments with impact bonds, as well as new efforts underway such as the Education Outcomes Fund, the International Finance Facility for Education, and the Africa Education Fund. Reducing the cost of sending remittances could also free up household resources for education.

Efforts to identify efficiencies in current education spending are necessary to free up additional resources. Key areas to unlock resources include improving teacher deployment and utilization, reducing unit costs of secondary education delivery, addressing high repetition and low learning levels, and improving education system management.

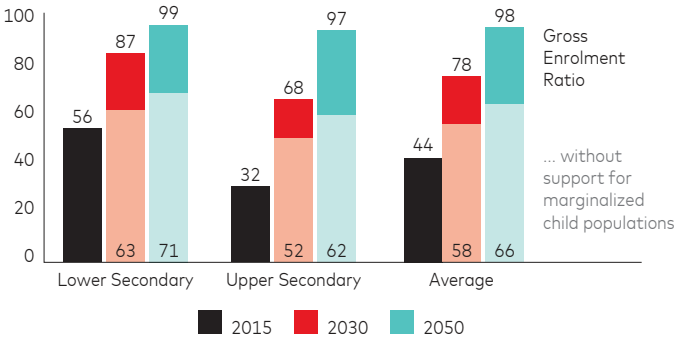
Many governments are moving to offer fee-free lower secondary education, yet, while important, these reforms have often not benefitted the poorest students. Because poor and marginalized students often do not complete primary education, they do not benefit from policies offering free lower secondary education. Those who do transition out of primary often cannot afford lower secondary, even if tuition is free, due to other direct and indirect costs, including school-related fees (such as parent-teacher association fees), uniforms, textbooks, and transportation.

Research has demonstrated that equity-based funding formulas, targeted need-based scholarships, and cash transfers for the poor can remove the barriers to secondary education. These instruments can be effective in countries both with and without fee-free lower secondary education. Yet, such tools must be informed by strong data, policy, and community involvement to ensure that funds are targeted to those most in need.

Progress is possible. Modelling by the Education Commission shows that if all countries in Sub-Saharan Africa improved at the rate of the continent's top 25 percent of performers, and invested particularly in expanding access to the most marginalized, 100 million more students could access and complete secondary education by 2050. This requires implementing reforms and targeting 30 percent more spending to marginalized students and districts at the lower secondary level, and 40 percent at the upper secondary level. Such additional spending on marginalized students and districts is part of the total US$175 billion per year in investment that the Education Commission estimates is needed to reach these goals by 2050.[15]

PROJECTED GROSS ENROLMENT RATES TO 2050

PROJECTIONS WITH AND WITHOUT ADDITIONAL SUBSIDIES FOR MARGINALIZED CHILD POPULATIONS



Source: Education Commission, "Costing and Financing Secondary Education," Background Memo on Education Commission Costing Model Results Developed for Mastercard Foundation Report, Secondary Education in Africa: Preparing Youth for the Future of Work (New York: Education Commission, May 2019).

A student helps a teacher with a demonstration during science class in Rwanda as part of the Mastercard Foundation Leaders in Teaching program.

RECOMMENDED ACTIONS

1. **Provide political vision and leadership at the highest levels to support and prioritize investments and policies to reform and innovate in secondary education.** This includes:

   - Invest in creating a **shared vision and buy-in to system reforms** that expand the focus on skills for work in secondary education and respond to the needs of young people and their communities
   - Enable implementation through **viable plans with clear roles and responsibilities** for specific outcomes, accountability mechanisms, and adequate funding
   - Strengthen the **capacity of ministries** to translate inputs into outcomes through greater technical expertise, the ability to use, and analyse, data and to overcome political economy constraints

2. **Integrate seven key skills relevant to labour market needs into secondary education curricula and pedagogy.** Specifically:

   - Strengthen **foundational skills** in literacy, numeracy and fluency in the language of instruction through greater curriculum time, stronger pedagogies and remediation support where necessary
   - Develop **21st-century skills** through interactive and group-based learning, experiential learning, and leadership development
   - Develop **digital skills** by strengthening teacher and student capacity to use digital technology and invest in hardware and software at school level
   - Strengthen **STEM knowledge and skills** through enhancing the quality of science teaching, increasing practical problem-solving activities, and reducing gender barriers
   - Expand opportunities for developing relevant **technical and vocational skills** through offering TVET courses in general secondary education, ensuring TVET courses include foundational, 21st-century and digital skills, and aligning technical and vocational courses to labour market needs
   - Promote **entrepreneurship and work-readiness skills** through co- and/or extracurricular courses, experiential learning, skills courses in business planning and management, financial literacy, and work-readiness
   - Ensure **alignment between competency-based curriculum reforms, pedagogy and assessment systems**, including reducing the number of high-stakes examinations, greater focus on assessment of skills, and conducting national assessments of learning to support teachers and schools falling behind

A student in class in Senegal as part of the Mastercard Foundation partnership with Education Development Centre, Inc.

3. **Expand recruitment and training of teachers to fill projected gaps (10.8 million secondary school teachers by 2030).** This will require a huge expansion in teacher recruitment and training while also improving teachers' working conditions to attract good-quality new entrants and reduce attrition. In addition:

   - Invest in **high-quality pre-service teacher training** that equips new teachers with subject matter content, pedagogical skills and fluency in the language of instruction, as well as supervised practice with experienced teachers
   - Develop stronger **promotion and leadership pathways** for high-performing teachers that allow them to provide instructional leadership and mentor junior colleagues
   - Institute **certification programs for unqualified teachers** using face-to-face and distance learning approaches
   - Prioritize **digital skills development** for all teachers
   - Invest in strengthening **school leaders' capacity** to provide instructional leadership

4. **Establish and formalize alternative pathways between non-formal and formal education with portable accreditation to increase access for out-of-school youth.** Secondary systems must be increasingly structured in a flexible way to offer large numbers of youth alternative education pathways that allow for re-entry into formal schooling. Specifically:

   - **Scale successful and equitable education and training programs,** including those provided by non-state actors, through links to the formal education system
   - Facilitate **re-entry to school for adolescent mothers**
   - Create an **effective regulatory environment to harness the potential of non-state actors** to expand provision of high-quality secondary education, TVET, and ancillary services
   - Create **national skills strategies and/or national qualifications frameworks** that map available training and qualifications and create such pathways between levels and types of education and the labour market

5. **Create pathways between secondary-level general education, TVET, and post-secondary and tertiary education.** Governments and private institutions should create flexible admissions procedures, guidance, credit transfer procedures, bridging programs, and equivalency mechanisms that are recognized and accredited by the relevant authorities to formalize pathways between general and TVET education at all levels. National Qualifications Frameworks can also facilitate that process.

6. **Institutionalize capacity to innovate in education within government.** As the pace of social and economic change increases, and as greater numbers of youth seek to access secondary education, the need for innovation in education will intensify. Ministries of education should:
   - Develop **embedded innovation units** that use an approach of continual piloting, testing, adaptation, and scaling of successful models so that promising approaches can be mainstreamed
   - Establish **education innovation ecosystems** that engage stakeholders across the public, private and not-for-profit sectors and foster critical debate with space to learn and fail
7. **Generate substantial new resources for secondary education through a mix of strategies.** Those include:
   - Improve **domestic resource mobilization**
   - Explore **innovative financing mechanisms** such as results-based finance through social and development impact bonds
   - **Crowd-in additional resources** from the private and philanthropic sectors
   - Make more **strategic use of Official Development Assistance**
   - Reduce the **cost of sending remittances** to free up household spending on education
8. **Complement efforts to provide fee-free secondary education with equity-based financing.** Target the most disadvantaged students, girls in particular, with bursaries, scholarships, or cash transfers to enable them to meet secondary school costs such as uniforms, transport, and boarding. Targeted funding formulas to disadvantaged regions, schools, or groups also have strong potential.
9. **Use available resources more efficiently.** While more resources are needed in secondary education, much more can be done by using existing resources more efficiently, including:
   - Improve **teacher quality, deployment, and utilization**, and reduce teacher absenteeism
   - Counter **high repetition and low learning**, particularly at the primary level
   - Explore **alternative forms of secondary education delivery**, including reducing reliance on boarding facilities
   - Improve **education system management**
   - Ensure investments in secondary education are **not at the expense of improving access and quality of primary education,** which contributes to making spending on secondary education teaching and learning more effective and efficient
10. **Develop systems for cross-sectoral dialogue.** Create mechanisms to bring together and facilitate dialogue between education sector stakeholders and other government and labour market actors such as ministries of finance, labour, youth, and ICT, as well as employers, industry associations, and unions. That can help increase the relevance of secondary education and strengthen broad-based support for reform.

Students attend secondary school in Tanzania, as part of the Mastercard Foundation partnership with Fundación Paraguaya.

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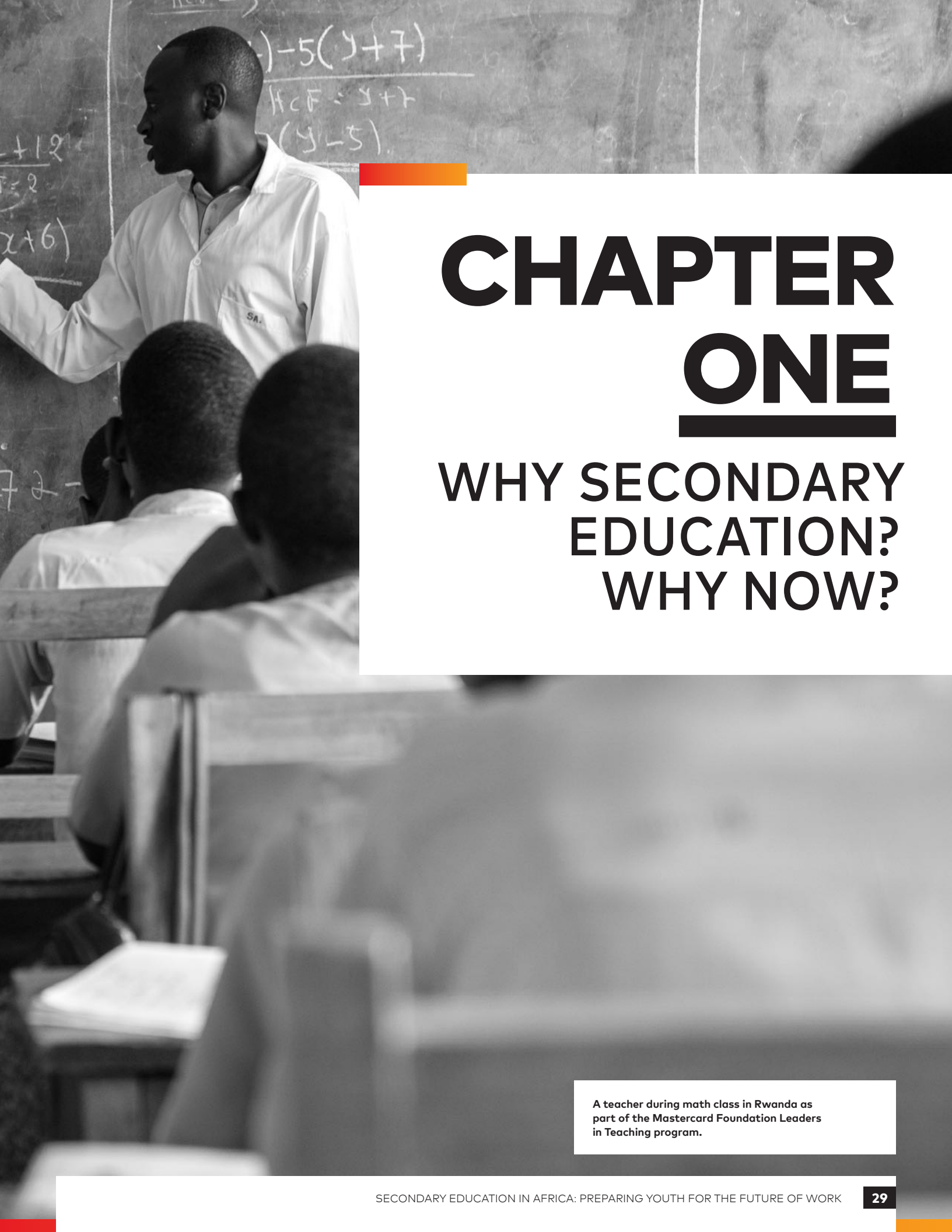


CHAPTER ONE

WHY SECONDARY EDUCATION? WHY NOW?

A teacher during math class in Rwanda as part of the Mastercard Foundation Leaders in Teaching program.

KEY TAKEAWAYS:

- **Africa's young and growing population positions the region well to realize the benefits of a demographic dividend.** Secondary education that prepares youth, and in particular young women, with the skills they need to enter the global workforce will play a critical role in unlocking that potential.
- **Secondary education can stimulate broad-based economic growth.** High-quality and relevant secondary education, accessible to all, can play an important role in driving long-term economic growth and reducing poverty in Africa by providing relevant skills to the growing workforce and unlocking productivity gains, particularly in the informal sector.
- **The nature of work is changing.** Various drivers, including digitalization, automation, climate change, and migration are changing the nature of work globally, including in Africa. Those disruptive forces will have wide-reaching impacts, with some jobs disappearing, new opportunities emerging, and the nature of many jobs changing. The impacts will be felt across most sectors and industries and will affect both formal and informal businesses.
- **Secondary education is a key platform for work.** With high numbers of youth leaving school before completing 12 years of basic education, and low enrolment at the tertiary level, secondary education will increasingly become the main platform from which youth in Sub-Saharan Africa enter the labour force. It is therefore critical for secondary education to provide young people with the skills and competencies they need to secure and create employment opportunities.
- **The challenge is unprecedented.** Expanding access to high-quality, relevant secondary education in Sub-Saharan Africa is an urgent priority. Due to widespread success with increasing enrolment in and completion of primary school, a growing share of a growing population is transitioning to secondary. Yet, the expansion of the secondary education system will take place in a context where there are still gaps in enrolment and low learning levels at the primary level, a rapidly expanding youth population, and increasingly constrained fiscal space to invest in education.

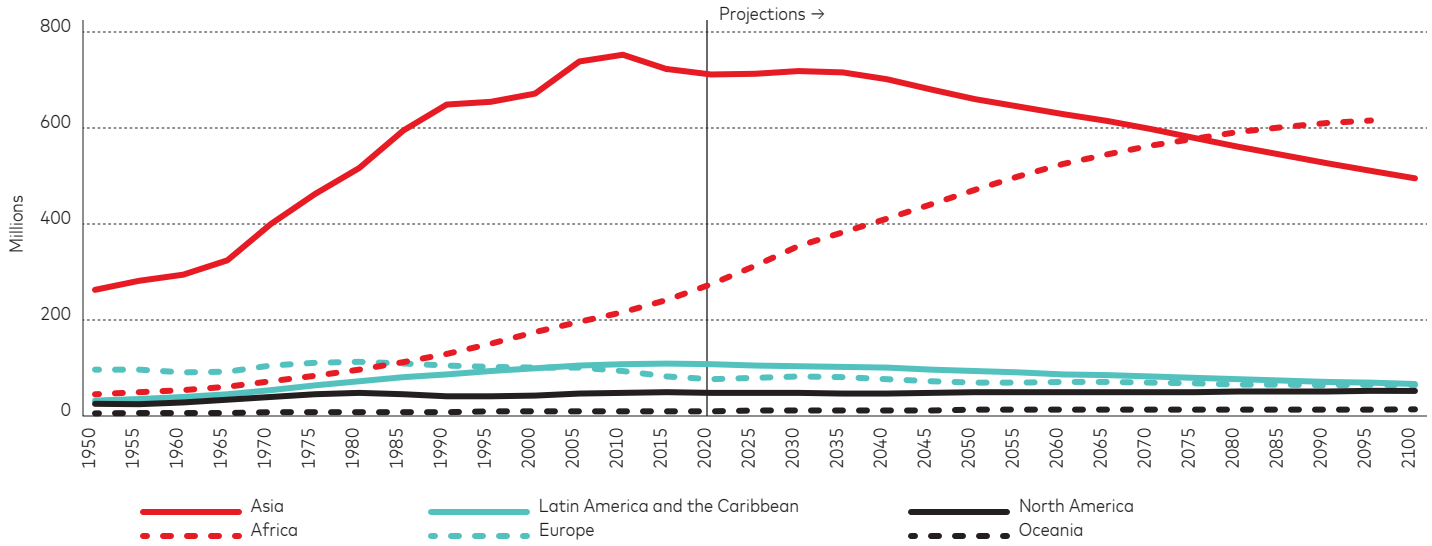
Students in secondary school in Rwanda.

1.1 SECONDARY EDUCATION IS CRITICAL TO REALIZING THE POTENTIAL OF AFRICA'S GROWING YOUTH POPULATION

1.1.1 ACCELERATING A DEMOGRAPHIC DIVIDEND THROUGH SECONDARY EDUCATION

Africa's share of the global workforce will increase significantly over the medium to long term. Africa is currently the youngest continent in the world and will continue to be so for the next several decades. Africa's youth population is expected to nearly double to 456 million by 2050, and by 2075, almost half of the world's young people will be African.[16]

FIGURE 1.1
AFRICA IS THE ONLY REGION WITH A GROWING YOUTH POPULATION



Source: UN Department of Economic and Social Affairs (UN-DESA) Population Division database, accessed August 2019.

Note: "Youth" refers to young people aged 15–24.

Africa's young and growing population positions the region well to realize a demographic dividend. It has been estimated that demographic transition in Africa could "explain 11–15 percent of GDP growth by 2030 and lead 40–60 million people out of poverty."[17] Policymakers' ability to harness that potential is, however, far from assured. To realize a demographic dividend, fertility rates[18] must fall, and the working-age population must be skilled and engaged in productive employment.

BOX 1.1
DEFINING DEMOGRAPHIC DIVIDEND

A demographic dividend occurs when the size of the labour force grows relative to the dependent population (i.e., children and the elderly). When that ratio increases, a larger share of the population has the potential to be engaged in productive activities, in theory leading to an increase in household savings and stimulating economic growth.

Secondary education that prepares youth, and in particular young women, with the skills they need to enter the global workforce, secure or create employment, and spur long-run economic growth will play a critical role in unlocking that potential. Building on the success of African governments in expanding access to primary education, opening doors to quality, relevant education at the secondary level is the next frontier.

At present, Africa has the highest fertility rates globally. The average total number of births per woman in Sub-Saharan Africa is 4.8, compared with a global average of 2.4.[19] The majority of countries in the region have not yet begun a demographic transition and fall under the "elevated" fertility category, meaning they will likely take longer to experience a demographic dividend (see Table 1.1).

TABLE 1.1
TOTAL FERTILITY RATES ACROSS AFRICA

	GROUP 1 LOW FERTILITY	**GROUP 2 DECLINING FERTILITY**	**GROUP 3 ELEVATED FERTILITY**
COUNTRIES	Algeria, Botswana, Cabo Verde, Djibouti, Egypt, Eswatini, Lesotho, Libya, Mauritius, Morocco, Namibia, South Africa, Tunisia	Comoros, Congo, Eritrea, Ethiopia, Ghana, Gabon, Kenya, Liberia, Madagascar, Malawi, Rwanda, Seychelles, Sierra Leone, Togo, Zimbabwe	Angola, Benin, Burkina Faso, Burundi, Cameroon, Chad, Central Africa Republic, DR Congo, Gambia, Guinea, Côte d'Ivoire, Guinea-Bissau, Equatorial Guinea, Mauritania, Mali, Niger, Mozambique, Nigeria, Senegal, Somalia, Tanzania, Uganda, Zambia
WEIGHTED AVERAGE (2017)	Total Fertility Rate (TFR)		
	2.9	4.1	5.4

LOW FERTILITY <3.5; DECLINING FERTILITY 3.5–4.5; ELEVATED FERTILITY >4.5

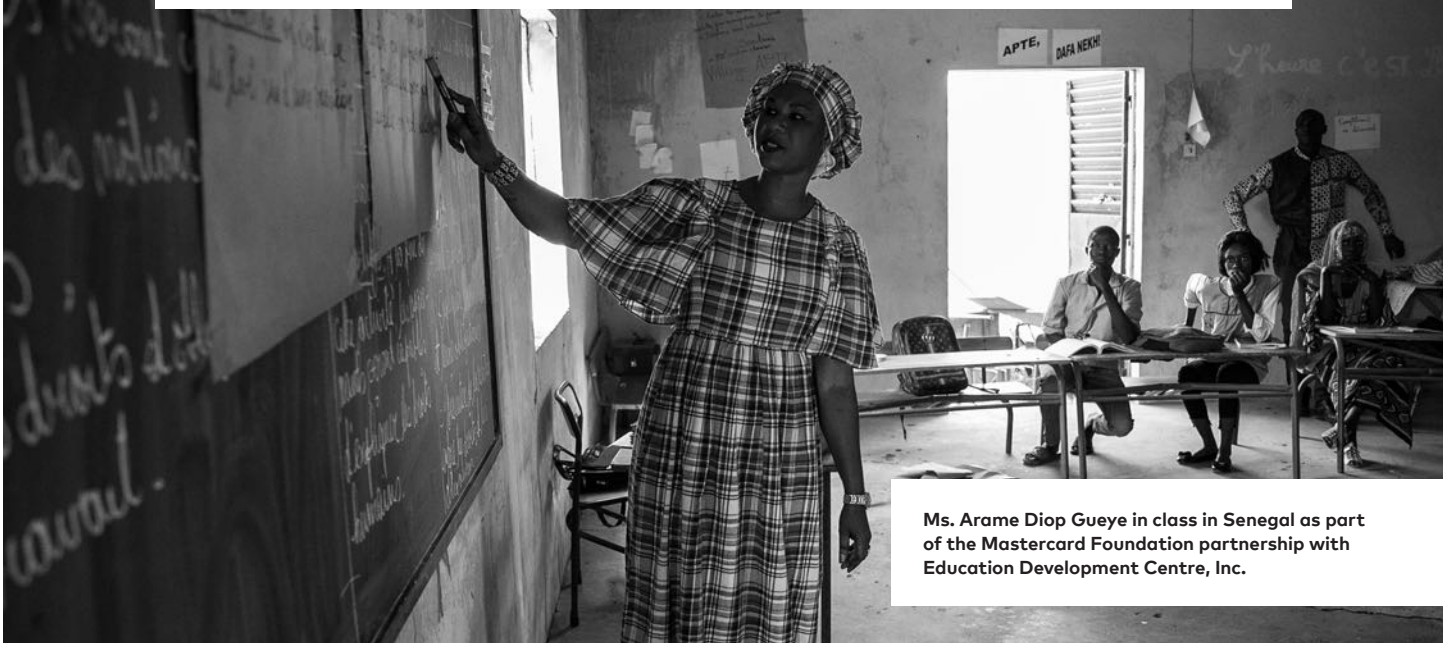
Source: Fertility Rates (World Bank Indicator), based on most recent available data from the World Bank database, accessed January 2020. Groups adapted from Eliya Msiyaphazi Zulu, "Africa's Demographic Transition and Demographic Dividend" (UN Expert Group Meeting on Changing Population Age Structures and Sustainable Development, New York, October 13, 2016), p. 6, adapting from ECA and AUC, "Creating and Capitalizing on the Demographic Dividend for Africa" (Addis Ababa: Economic Commission for Africa and African Union Commission, 2013), p. 18.

Girls' education, particularly at the secondary level, can play a key role in lowering fertility rates, increasing women's participation in the labour force, and accelerating demographic transition. There is a strong relationship between education level and declining fertility rates; "women with no education in Sub-Saharan Africa have 6.7 births, on average, while the number falls to 5.8 for those with primary education and to 3.9 for those with secondary education."[20] Policies that delay childbirth such as voluntary family planning, expanding access to contraception, and limiting early marriage, as well as policies that allow young mothers to re-enter the education system, are critical not only for upholding the rights of young women, but also for spurring demographic transition.

There is a strong relationship between education level and declining fertility rates.

In addition to reducing birth rates, a demographic dividend requires that the large working age population is engaged in productive economic activity. As described below in Box 1.2, there are significant demand-side challenges to generating the jobs necessary to absorb a growing youth population. Skills, however, are an important part of the equation.[21] Investing in broadening access to relevant secondary education will strengthen the region's pool of human capital, help to lower fertility rates, and improve productivity, all of which increase a country's chances of benefitting from a demographic dividend.

Those entering education systems today will be the workforce of tomorrow. Now is the time to invest in ensuring that Africa's growing youth population has the skills needed to engage in productive economic activity — be it in formal employment or through improved livelihoods in the informal sector. Secondary education will have a key role in ensuring that Africa's youth will be equipped with relevant skills as they make up an increasing share of the global labour force.



Ms. Arame Diop Gueye in class in Senegal as part of the Mastercard Foundation partnership with Education Development Centre, Inc.

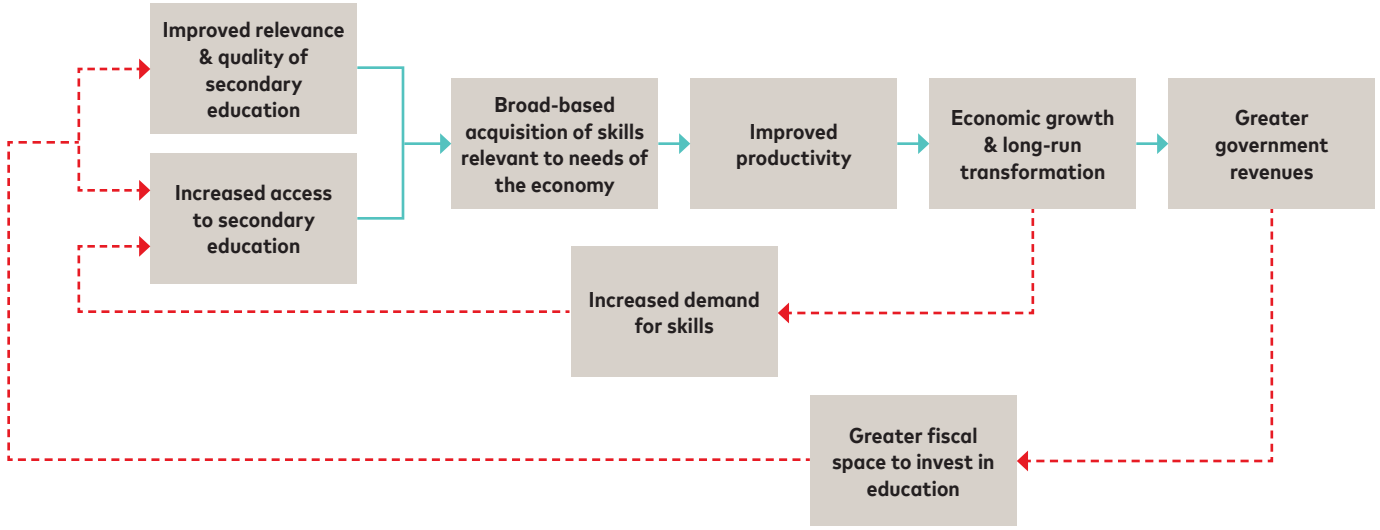
1.1.2 IMPROVED PRODUCTIVITY AND ECONOMIC GROWTH THROUGH SECONDARY EDUCATION

African governments have ambitious agendas for economic transformation, as laid out in the African Union's Agenda 2063 — a vision of inclusive growth driven by investments in human capital, science, and technology. Many aspire to develop knowledge economies, based on advances in science and technology, and thus aim to transform their education systems to develop a generation of young people who are equipped to lead that developmental shift. In the medium term, even as the digital sector and high-technology industries grow in Sub-Saharan Africa, there is a gulf between those aspirations, the level of human capital development in the region, and the realities of the job opportunities available to most young people.

Education has long been seen as one of the key foundations of a prosperous, equitable society. While it is important not to see education as a "silver bullet," nor to reduce the benefits of education to economic outcomes alone, there is an important relationship between education and economic growth. Investment in human capital, of which universal secondary education is a key component, can bring returns at both the societal level in terms of economic growth and at the individual level in terms of higher wages.

Numerous studies seeking to understand drivers of growth have highlighted the important role of education. While debate continues in the academic literature on the strength and direction of that relationship, recent studies that have used measures of education that reflect cognitive skill acquisition rather than years of schooling have presented new evidence linking education to growth.[22] Looking forward, the World Bank's Africa Human Capital Plan suggests that "GDP per worker could be 2.5 times higher if everyone reached the benchmark of complete education and full health."[23] Further, at the individual level, the World Bank finds that each additional year of schooling raises individual earnings by 11 percent for males and 14 percent for females, the highest returns on education of any region globally.[24] Individual benefits from education are also felt in the informal sector. Research from Ghana, Rwanda, and Tanzania shows a strong correlation between educational attainment and earnings in household enterprises.[25]

FIGURE 1.2
LINKING SECONDARY EDUCATION WITH ECONOMIC GROWTH AND TRANSFORMATION



Source: Authors

Increased productivity, derived through more relevant knowledge and skills, is linked to long-run economic growth. The simplified model outlined in Figure 1.2 shows the linkages between productivity and economic growth which both increase demand for skills and boost government revenues to be invested back in education. To that end, efforts to ensure the provision of relevant skills for the (still very small) formal sector should be combined with much stronger efforts to expand access to relevant secondary education that can enhance the skills of the majority of young people, whose only option for gaining a livelihood in the foreseeable future will be in the informal sector. Those skills are also critical in order to ensure that *all* young Africans are well-equipped to take advantage of new opportunities in an increasingly digital, automated, and connected world.

Investment in human capital, of which universal secondary education is a key component, can bring returns at both the societal level in terms of economic growth and at the individual level in terms of higher wages.

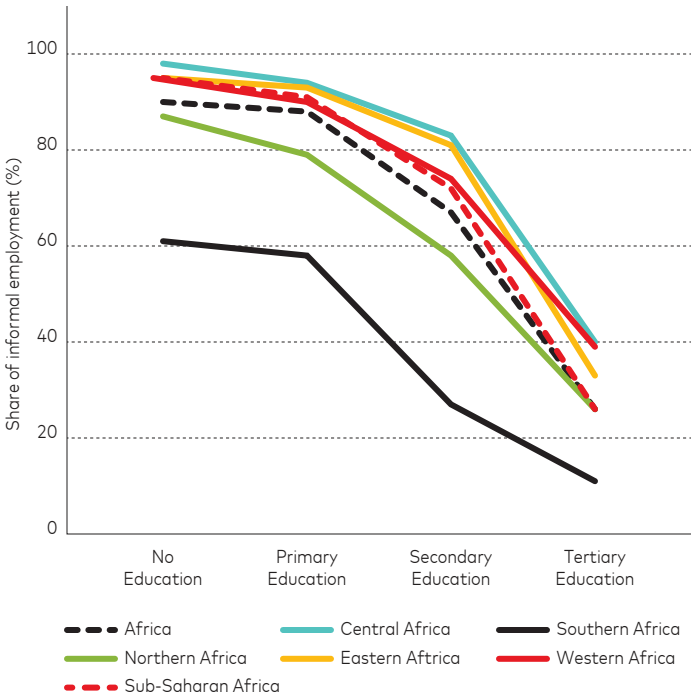
A student in class in Senegal as part of the Mastercard Foundation partnership with Education Development Centre, Inc.

A focus on broad-based skills provision could help to facilitate access to more productive jobs across the value chain.[26] Given that a great share of the African economy is comprised of small informal businesses, one of the key ways that improved education will contribute to economic growth is through raising productivity, and thus incomes, in the informal sector. For example, in the agricultural sector, farmers with higher levels of education are shown to be early adopters of improved inputs such as new seeds, tillage practices, fertilizer, and animal breeds, leading to improved output and earnings. Education is particularly important in environments undergoing rapid technological change.[27]

Education also fosters deeper connections between the formal and informal sectors. Those relationships work in various directions: deeper and denser linkages between the formal and informal sectors are more likely where informal enterprises employ better-educated workers who know how to find and make those important connections. Evidence from West Africa suggests that informal firms perform better if they use inputs purchased from formal firms. They are more likely to do so if the informal firm is larger, has access to external finance, and if its owner is better educated.[28] Increasing the productivity of smallholder farms and household enterprises contributed to structural transformation in Asia and Latin America, and will be important to Africa's future as well.

There is a strong correlation between education level and formal employment in Africa. In Sub-Saharan Africa, 97 percent of workers with no education are informally employed. In southern Africa, the level of informal employment is much lower than in the rest of Sub-Saharan Africa, but those with higher levels of education are still far more likely to have formal work than those without. It is important to note that the observed correlation does not imply that education is the only driver of access to formal work, or that it inevitably leads to formalization.

FIGURE 1.3
SHARE OF INFORMAL EMPLOYMENT BY REGION AND LEVEL OF SCHOOLING



Source: Edward K. Brown and Helen Slater, "The Future of Work in Africa: Implications for Secondary Education and TVET Systems, Secondary Education in Africa Background Report" (Toronto: Mastercard Foundation, December 2018), p. 10, drawing on data from the International Labour Office Statistics (ILOSTAT) database (2017), reformatted by authors.

While critical, education is just one element of the growth equation. Capital investment, governance, strength of institutions, infrastructure, and technological advancement, among others, all influence economic growth. At present, several other factors, including high levels of external debt in Sub-Saharan Africa, global financial risks, and changing trade patterns could also impact growth in Africa over the medium term. While it is clear that education alone does not guarantee growth, developing human capital is a critical element of both promoting long-run growth and ensuring that it is more inclusive.

While it is clear that education alone does not guarantee growth, developing human capital is a critical element of both promoting long-run growth and ensuring that it is more inclusive.

As certain skills elicit higher employment and earnings premiums, those without relevant skills risk falling further behind. That is true not only for individuals, but also for economies, and it means that there is a high societal cost to not prioritizing skills development. Investing in improved access and learning outcomes for all youth, including the most marginalized, is critical for promoting greater equity in skills, opportunities, and ultimately, prosperity.

1.2 AFRICA'S YOUTH EMPLOYMENT LANDSCAPE

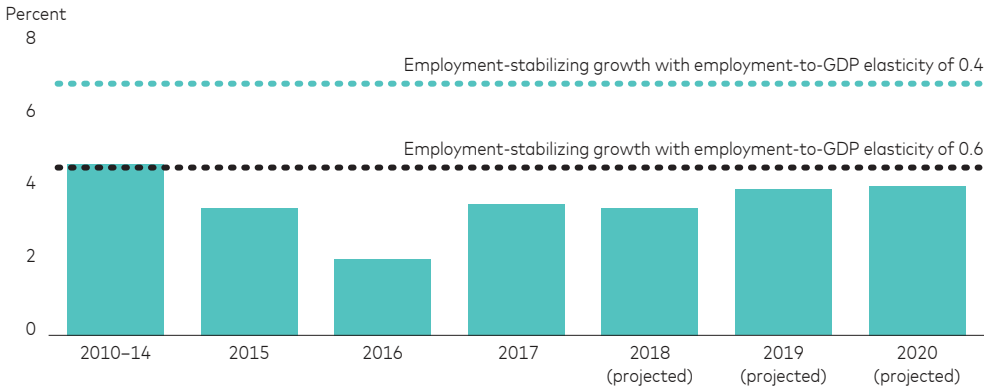
1.2.1 YOUTH EMPLOYMENT IS AMONG THE MOST SIGNIFICANT ISSUES FACING AFRICAN POLICYMAKERS

Africa faces a massive labour market challenge in the next several decades. As noted in Section 1.1.1., the region has the world's youngest and fastest-growing population. Unlike the rest of the world, Africa will keep getting younger as the century advances.

Formal employment is not currently projected to grow fast enough to absorb Sub-Saharan Africa's expanding youth population. The IMF estimates that approximately 20 million jobs need to be created per year over the next two decades to meet demand.[29] In the East African community, an estimated 2.6 million jobs must be created each year between 2015 and 2030; that means that 7,000 jobs must be created every day across the region simply to absorb the growing population.[30] In Rwanda, there are more youth turning 18 every two years (approximately 250,000 youth per year) than there are formal sector jobs in the entire economy. [31] To employ the growing youth cohort, African economies will have to rapidly generate high-productivity jobs.

Africa has experienced a sustained period of jobless growth. Employment growth since 2000 has remained low, around three percent per annum (see Table 1.2), despite relatively strong economic growth. The African Development Bank (AfDB) estimates that the regional employment elasticity of GDP — a measure of how responsive growth in employment is to economic growth — is 0.41. That means that a one-percentage-point increase in economic growth will only translate into a 0.41-percentage-point increase in employment growth. As shown in Figure 1.4, with present labour force growth rates, the AfDB estimates that an average GDP growth rate of 6.8 percent per annum would be needed simply to stabilize the current unemployment rate in Africa, let alone reduce it.[32] It should be noted that the relationship between employment growth and GDP growth differs significantly across the African region and depends on the unique drivers of growth in a given country. For example, in countries where economic growth is driven by a capital-intensive resource sector, such as in Equatorial Guinea or Angola, employment is largely unresponsive to growth.[33] To address the employment challenge, African economies must either achieve significantly higher growth rates or increase the labour intensity of that growth.

FIGURE 1.4
REAL GDP GROWTH IN AFRICA AND GDP GROWTH NEEDED TO ABSORB THE GROWING LABOUR FORCE, 2010–20



Source: AfDB, "African Economic Outlook 2019" (Abidjan: African Development Bank Group, 2019), p. 4, reformatted by authors.

1.2.2 THE MAJORITY OF YOUNG PEOPLE WILL CONTINUE TO FIND WORK IN THE INFORMAL SECTOR

Youth unemployment is more than double the average unemployment rate in Sub-Saharan Africa. In 2018, the unemployment rate in Sub-Saharan Africa was six percent for the population as a whole,[34] and 13 percent for the youth population (ages 15–24).[35] While those figures are slightly above global averages, the unemployment rate does not adequately capture the realities of African labour markets that are characterized by significant underemployment, vulnerability, and informality. Unemployment is held relatively low as many people are left with little option but to accept work in challenging conditions, given the absence of strong social safety nets.

TABLE 1.2
KEY LABOUR MARKET INDICATORS IN SUB-SAHARAN AFRICA

	2004–2008			2009–2013			2013–2018		
	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL
UNEMPLOYMENT	5.3	6.0	**5.6**	5.2	5.8	**5.5**	5.3	6.1	**5.7**
UNDEREMPLOYMENT	15.4	17.5	**16.4**	15.8	18.0	**16.8**	16.1	18.7	**17.3**
VULNERABLE EMPLOYMENT	70.1	84.5	**76.7**	68.9	83.1	**75.4**	67.6	81.9	**74.2**
WORKING POVERTY (below $1.90/day)	47.0	49.7	**48.2**	42.0	44.5	**43.1**	37.3	39.6	**38.3**
EMPLOYMENT GROWTH	2.9	3.1	**3.0**	2.4	2.3	**2.3**	2.7	2.9	**2.8**

Source: Adapted from Edward K. Brown and Helen Slater, "The Future of Work in Africa: Implications for Secondary Education and TVET Systems, Secondary Education in Africa Background Report" (Toronto: Mastercard Foundation, December 2018), p. 7, drawing on most recent available data from International Labour Office Statistics (ILOSTAT) database, accessed January 2020, and World Bank database, accessed September 2019.

Note: Underemployment refers to combined unemployment and time-related underemployment.

Sub-Saharan Africa's employment landscape is characterized by underemployment, vulnerable employment, and working poverty. The underemployment rate — taking account of people working fewer hours than desired — is approximately double the more narrowly defined unemployment rate.[36] The share of the population in vulnerable employment — those who are self-employed or are contributing family workers, often associated with informal household enterprises or smallholder agriculture — also remains stubbornly high. Vulnerable employment has hardly changed since 2000, and still accounts for nearly 75 percent of the Sub-Saharan African labour force (see Table 1.2). Finally, while working poverty — those earning below the international poverty line of $1.90 per day — has decreased, it still represents over one-third of the population. Precarious working conditions often disproportionately affect women. As shown above in Table 1.2, the rate of vulnerable employment for women is nearly 15 percentage points higher than for men.

Precarious working conditions often disproportionately affect women.

Sub-Saharan Africa's workforce is overwhelmingly engaged in the informal sector. Approximately 40 percent of jobs in Africa are in "household enterprises" — unincorporated, informal, low-productivity businesses providing self-employment or family employment in farming or urban trading activities.[37] In 2018, household enterprises and agriculture comprised 85 percent of employment in low- and lower-middle-income countries in Sub-Saharan Africa.[38] It has been estimated that 75 percent of the 125 million new work-seekers coming into the Sub-Saharan African labour market between 2010 and 2020 would be in the informal sector — split roughly equally between agriculture and household enterprises. The size of the youth bulge in Africa combined with the current structure of the economy mean that the majority of that generation's workers are likely to remain in the informal sector for many years to come.[39]

BOX 1.2

THE JOBS PROBLEM IN AFRICA GOES BEYOND A SKILLS GAP

While ensuring that youth are equipped with the right skills and competencies is essential, the limited absorptive capacity of the labour market, particularly the formal sector, goes beyond a skills gap. Factors include political or institutional constraints, such as:

Labour costs: Firm efficiency in Africa is equivalent to other regions, but firms' labour costs in the formal sector are higher than elsewhere. In Africa, those costs increase steeply as firm size increases, impacting firms' profitability and future growth.[40]

Cost of indirect inputs: Indirect inputs for infrastructure services, such as electricity, transport, logistics, and water, are very high in Africa compared with other developing regions. That is partly due to poor institutional performance of public-sector or private service providers, and partly due to limited availability of many services.

Weak digital infrastructure: Limited fixed broadband networks and mobile telecommunications are increasingly a strain on growth. Only 19 percent of the population of Sub-Saharan Africa had internet access in 2016, compared to a global average of 45 percent, limiting the growth of an emerging tech sector and the ability of traditional firms to harness the benefits of global digital commerce.[41]

Weak institutions: Poorly functioning institutions, such as those in trade facilitation, contract enforcement, and public sector procurement, affect firm performance. Land tenure systems and land markets are also a particular problem in natural-resource-based sectors — agriculture, forestry, minerals, oil extraction, and tourism — though they can negatively affect urban manufacturing, too.[42]

Access to finance: Access to finance is limited by institutional challenges as well as shallow and narrow financial markets in many African countries. Many firms rely on personal networks rather than on banks to obtain loans, and interest rates are often high. Finance and electricity were ranked as the two most significant obstacles by firms across both size groups and sectors (manufacturing and services), though both obstacles were much less significant for large firms than for small.[43]

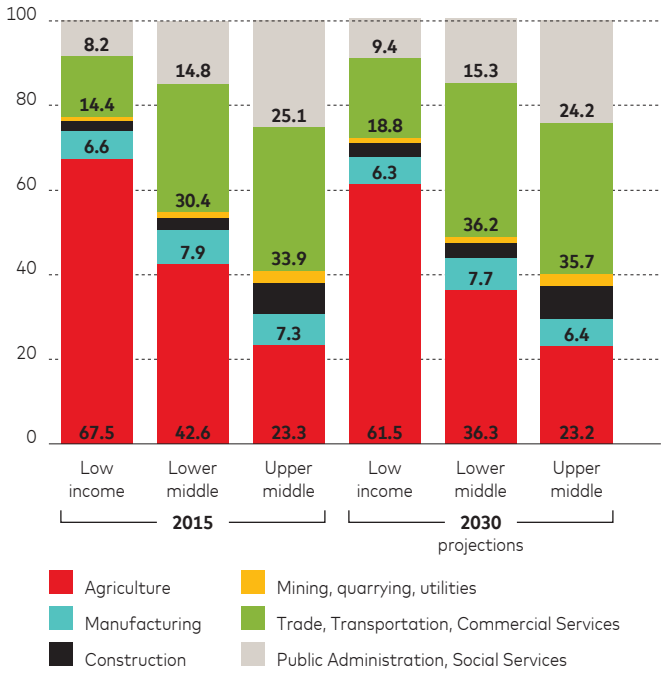
Political influence: Political interference can set restrictions on new firms entering specific markets and result in individual firms having undue influence on policy or regulation. While some firms benefit from having favourable access to policymakers, the growth of the majority of firms is limited as a result.

Addressing those barriers to formal sector growth requires interventions to improve systems and processes. Those interventions are technically and politically complex and, in addition, need to complement each other because failure or delay in one arena compromises success in others.

1.2.3 AGRICULTURE AND SERVICES ARE THE LARGEST EMPLOYERS IN AFRICA

In low-income African countries, employment is dominated by the agricultural sector (Figure 1.5). As average incomes rise, employment shifts towards services — both trade and commercial services (retail) and public and social services. Yet even in higher-income countries in Africa, agriculture still currently accounts for nearly a quarter of employment. Across all income levels, manufacturing constitutes a very small portion of employment. Those trends are projected to continue to 2030, assuming recent growth patterns persist.

FIGURE 1.5
PERCENTAGE OF EMPLOYMENT BY ECONOMIC ACTIVITY AND COUNTRY INCOME GROUP IN SUB-SAHARAN AFRICA



Source: Edward K. Brown and Helen Slater, "The Future of Work in Africa: Implications for Secondary Education and TVET Systems, Secondary Education in Africa Background Report" (Toronto: Mastercard Foundation, December 2018), p. 27, drawing on ILOSTAT (November 2017) modelled estimates and projections.

Given that projected change in the sectoral makeup of the African economy is limited, policies and strategies to increase productivity, labour absorption, and the reallocation of labour to more productive jobs within dominant sectors, such as agriculture and services, will be critical. In 2015, agriculture was estimated to employ approximately 205 million people in Sub-Saharan Africa, including both smallholder commercial and subsistence producers.[44] The region has significant comparative advantages in that area, particularly if it is able to capitalize on upstream value addition opportunities in food processing and distribution. The World Bank projects the value of the region's food and beverage markets will reach US$1 trillion by 2030, up from US$313 billion in 2010.[45]

The service sector is already the fastest-growing in terms of job creation and value addition to GDP in African economies. Services employed an estimated 111 million people across Sub-Saharan Africa in 2015, a vast majority of whom worked in household enterprises.[46] Demand for services is growing with rising incomes and urbanization. Areas that currently make up a small share of employment but are growing quickly include "industries without smokestacks" — ICT-based services such as business process outsourcing — as well as transport and tourism. Creative industries may also have potential for growth in Africa.[47] In Nigeria, for instance, the movie industry directly employs 300,000 people and indirectly employs one million more through the value chain of distribution and support services.[48]

A key enabler of greater job creation and inclusive growth in both agriculture and services will be unlocking productivity gains for informal workers and their household enterprises. As described in the next section, digitalization presents many opportunities for progressive formalization of enterprises and making their markets more dynamic, such as marketing through social media, improving information flows, easing transport of goods and people, and unlocking access to financial services. Key to harnessing those benefits, however, will be a labour pool with strong foundational, digital, and 21st-century skills (see key skills in Chapter Two). Technical and vocational skills in each of those sectors will also be critical.

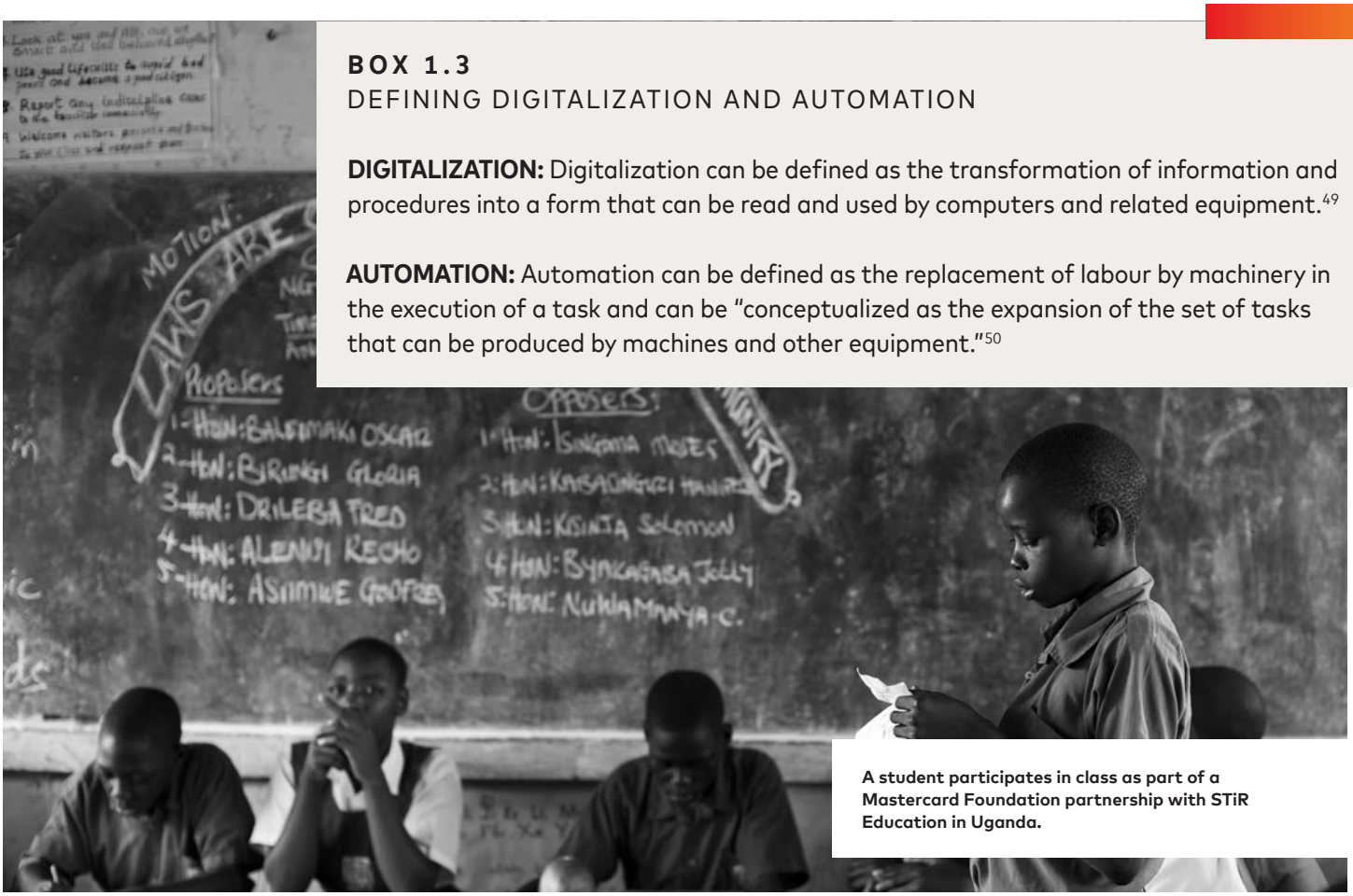
1.3
THE NATURE OF WORK IS CHANGING GLOBALLY, INCLUDING IN AFRICA

The nature of work is changing, driven by a constellation of forces such as digitalization, automation, climate change, global trade, urbanization, and migration. Those forces will have wide-reaching impacts on labour markets in Africa, with some jobs disappearing, new opportunities arising, and the task-content of many jobs changing. Increasing uncertainty and the pace of change will be felt across most sectors and industries and, importantly, will affect those working in both the formal and informal sectors.

BOX 1.3
DEFINING DIGITALIZATION AND AUTOMATION

DIGITALIZATION: Digitalization can be defined as the transformation of information and procedures into a form that can be read and used by computers and related equipment.[49]

AUTOMATION: Automation can be defined as the replacement of labour by machinery in the execution of a task and can be "conceptualized as the expansion of the set of tasks that can be produced by machines and other equipment."[50]



A student participates in class as part of a Mastercard Foundation partnership with STiR Education in Uganda.

Digitalization and automation are among the key drivers shaping and changing the nature of work. The long-run effects of digitalization and automation are very difficult to predict with any precision, whether on a specific industry or on a specific place, yet there is reason for optimism. Early estimates of very high automation-induced job losses[51] have been heavily moderated by later studies, which make the crucial distinction between tasks, jobs, and occupations.[52] Automation will instead have far greater impact on how work is carried out.[53]

In many cases, digitalization and automation are likely to change the task-content of jobs and occupations rather than eliminate them entirely.[54] Thus, some job-loss estimates have been revised downward: Early predictions of 85 percent of jobs lost in Ethiopia have given way to estimates of five percent, and the same order of magnitude is expected elsewhere — five percent in Kenya, eight percent in Nigeria, and 13 percent in South Africa.[55] The estimates of job losses provided above do not account for the opportunities created by technological change and other forces, such as climate change and global trade opportunities. The emergence of new tasks and processes is likely to also lead to new occupations as well as an increased need to work alongside and manage technology.

The long-run effects of digitalization and automation are very difficult to predict with any precision ... yet there is reason for optimism.

The changing task-content of jobs and the integration of tasks relying on digital technology into previously low-skill occupations have important consequences for equity. Digitalization and automation have the potential to exacerbate inequality, further deepening the "digital divide," which is geographic, class-based, and gendered. Those who are able to utilize digital technology to enhance their productivity are likely to benefit through greater employability and higher wages. On the other hand, those who lack foundational skills that facilitate lifelong learning, and key skills like digital literacy, are more likely to be left behind (see Chapter Two for descriptions of skills).[56] Those realities underscore the imperative of delivering relevant skills at scale to ensure that young people in Africa are ready to harness the potential of technological change and thereby boost their productivity.

BOX 1.4
DEFINING DIGITAL COMMERCE AND PLATFORMS

DIGITAL COMMERCE: The sale of goods and services online, including all forms of e-commerce or digital trade, as well as the gig or sharing economy.[57]

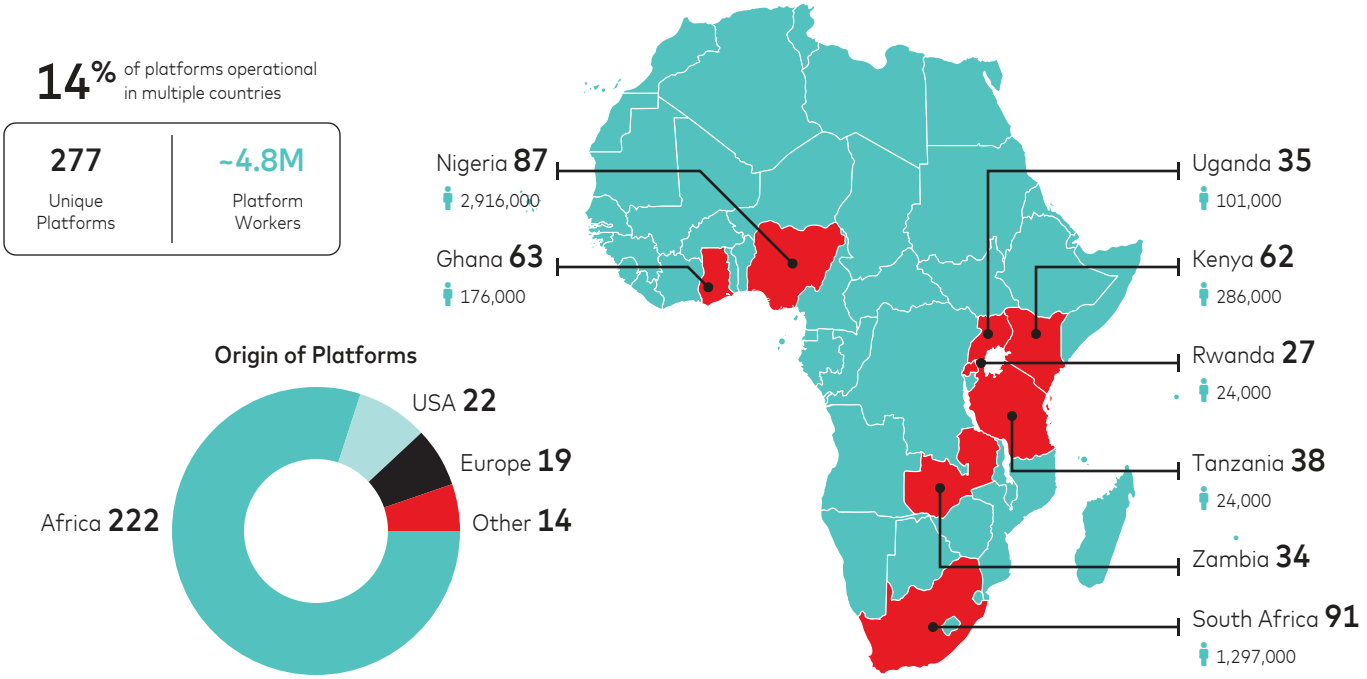
GIG ECONOMY: A labour market characterized by the prevalence of short-term contracts or freelance work as opposed to permanent jobs.[58]

DIGITAL PLATFORMS: Online businesses that facilitate commercial interactions between at least two different groups that are dominant across more than one sector. Companies like Jumia or Lynk Kenya are examples of African digital platforms.[59]

Digital platforms are impacting the employment landscape in Africa. Research on digital commerce and the rise of digital platforms in Africa highlights the possible indirect benefits to reducing barriers to entry and scale for small enterprises. Digital platforms can also be powerful connectors linking young people with job opportunities or new markets for their micro-enterprises. Finally, engagement with digital platforms can serve as an opportunity to grow and progressively formalize small businesses.[60] There is some evidence that women in African countries for which data is available — including Ghana, Kenya, South Africa, and Tanzania — are making disproportionate use of digital platforms to access work, despite their overall lower use of mobile phones and the internet. There is, however, a risk that the poorest workers, disproportionately women, may primarily access the most insecure parts of the gig economy, and efforts to increase the safety, security, and levels of remuneration in those areas are needed.[61]

In a scan of eight Anglophone African countries, insight2impact found 283 unique digital platforms operating in Africa, 81 percent of which had African origins.[62] They estimate that there are already 4.8 million people using digital platforms to earn at least some portion of their incomes in Africa in 2018[63] and those numbers are projected to grow significantly, potentially reaching 80 million by 2030.[64] In a companion piece to the 2019 World Development Report, the World Bank discusses the potential of digital technologies to contribute to improved productivity and livelihoods in Africa. Evidence on pro-poor outcomes of digitalization is encouraging, but the authors stress the importance of investing in education and foundational and digital skill development to realize that potential.[65]

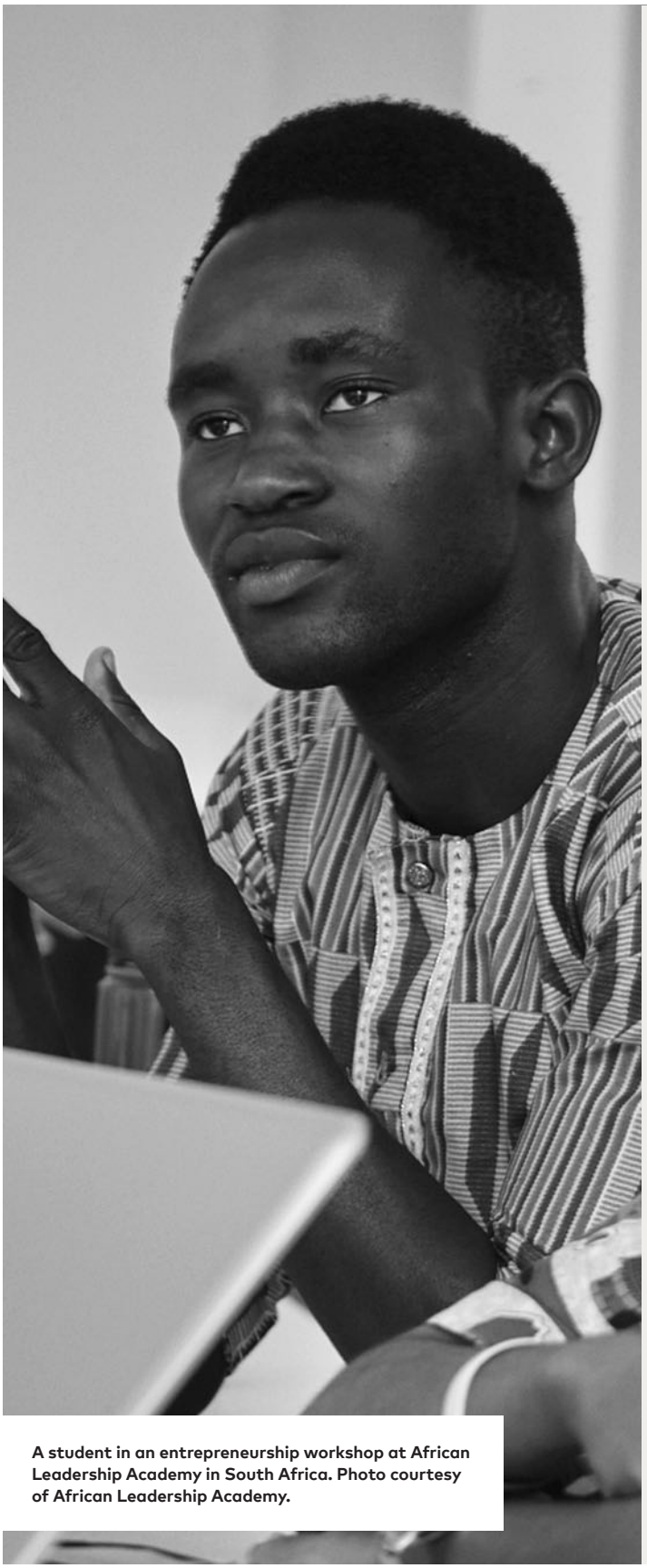
FIGURE 1.6
ESTIMATED EMPLOYMENT IMPACTS OF DIGITAL PLATFORMS ACROSS AFRICA



Source: Kate Rinehart, Chernay Johnson, and Doubell Chamberlain, "The Potential of Digital Platforms as Distributors and Enablers of Insurance in Africa," insight2impact (blog), December 11, 2018, accessed September 13, 2019, https://i2ifacility.org/insights/blog/the-potential-of-digital-platforms-as-distributors-and-enablers-of-insurance-in-africa?entity=blog, citing data from i2i Facility, "Africa's Digital Platforms Database," insight2impact, 2018, http://access.i2ifacility.org/Digital_platforms/ and "After Access Survey," After Access, 2017, https://afteraccess.net/, reformatted by authors.

The trends of digitalization and automation, as well as other global forces such as climate change and migration, will increase uncertainty and the pace of change. How gains and losses "net out" in any specific place will depend on economic, social, and political processes there and elsewhere. Both the rate and pattern of jobs will be determined not by technological changes alone, but also by economic and financial considerations (including relative costs of capital and labour and the return on investment) and the quality of the enabling environment. What is clear, however, is that increased automation and digitalization will change the nature of work so that even traditionally "low-skill" jobs will require competencies such as digital literacy — together with basic foundational literacy and numeracy skills. Africa's ability to capitalize on those technological changes will therefore depend in large part on its ability to broadly increase the level of its human capital.

... increased automation and digitalization will change the nature of work so that even traditionally "low-skill" jobs will require competencies such as digital literacy ...



A student in an entrepreneurship workshop at African Leadership Academy in South Africa. Photo courtesy of African Leadership Academy.

BOX 1.5

LONG-RUN CHALLENGES IMPACTING EDUCATION AND THE NATURE OF WORK

The trends of digitalization and automation are not alone in impacting the changing nature of work in Africa. Complex global issues like climate change, urbanization, and migration are all impacting the skills and learning needs of young people as well as impacting the state of education delivery in Africa.

CLIMATE CHANGE

Africa is very vulnerable to the effects of climate change, in large part due to agriculture's significant role in the economy. More frequent climate change-induced shocks to agriculture such as drought and flooding raise the risk of food insecurity, and also of general economic contractions and public spending cuts in countries dependent on agricultural exports. Landlocked, agriculturally-dependent countries such as Malawi have experienced regular macroeconomic crises due to crop failure, while coastal cities such as Beira and Mombasa have suffered extensive damage from climate-linked natural disasters.[66] Young people increasingly need the skills to be adaptable, resilient, and creative problem solvers in order to address the environmental challenges we face today. Education and relevant skills acquisition can play an important role in emergency preparedness and disaster risk reduction strategies.[67] Education also plays an important role in equipping young people with the tools needed to develop a green economy to not only cope with, but also reverse the effects of climate change.

Climate change also has several negative impacts on schooling. Those include environmental damage to schools' physical infrastructure and an increased need to cool classrooms due to rising temperatures, with very limited capacity to do that. Agricultural challenges increase rural poverty, thereby increasing household demand for labour, thus affecting pupil and often teacher attendance. Food insecurity and poor pupil nutrition exacerbate those problems with negative effects on their ability to learn in the classroom.

BOX 1.5 (CONTINUED)
LONG-RUN CHALLENGES IMPACTING EDUCATION AND THE NATURE OF WORK

RAPID URBANIZATION

By 2035, half of the continent's population will live in cities, rising to 80 percent by 2050.[68] Rapid urbanization has resulted in large, crowded informal settlements that provide consumer markets to the mass of tiny household enterprises selling goods and services. Poor urban planning and land regulation leads to inefficient market operation. There are very few of the economic benefits of agglomeration such as ready access to pools of skilled labour, production inputs, knowledge and market information.

The complexities of urbanization have consequences for the delivery of education. Slums have fewer schools than non-slum areas (relative to population), especially publicly-funded schools, increasing reliance on private and often informal schools. Schools in informal settlements have poorer facilities and materials. Higher poverty levels also increase the burden of family care and housework on children, especially girls, affecting school attendance. Significantly lower enrolment rates are common in slum areas relative to non-slum suburban areas.

MIGRATION

In 2019, there were 28.9 million cross-border migrants from Sub-Saharan Africa, 19.7 million of whom migrated within Africa and 9.3 million outside Africa.[69] African migrants are disproportionately young[70] and youth unemployment and underemployment are important drivers of migration. Migration has well-known costs and benefits for sending countries. The loss of highly skilled labour significantly lowers the social return to national education investment. But there is also a "brain gain" linked to returnees, and to diaspora investment and knowledge flows back to countries of origin.

About half of the private capital that flows into Africa is remittances, and they are growing: In 2005–2007, remittance inflows were $38.4 billion, and in 2014–2016, they were $64.9 billion.[71] That raises aggregate economic growth and would be expected to increase demand for labour. Few systematic studies have been done in Africa, but there is some statistical evidence of a positive contribution from increased migration to manufacturing output and productivity growth.[72] Furthermore, the migrant contribution to GDP was estimated to be as much as 19 percent in Côte d'Ivoire, 13 percent in Rwanda, and nine percent in South Africa.[73]

Through remittance receipts, migration has important impacts on education of children in countries of origin, both those left behind by migrating parents and those in extended families,[74] though young people left behind often have to carry a greater burden of family care, affecting their school attendance. On the other hand, youth who migrate with families face language and cultural assimilation challenges, and often also personal security difficulties, all of which are likely to affect their education negatively. Given the high mobility of young people today, 21st-century and digital skills are increasingly necessary to facilitate adaptation and integration into new contexts so that young people are set up with the foundations to thrive and to take advantage of new opportunities.

See "Focus: Strengthening Secondary Education for Refugees and Displaced Youth" on p. 148 for a discussion of secondary education in situations of forced migration.

A Mastercard Foundation Scholar at a Secondary Scholars Convening in Rwanda.

1.4 SECONDARY EDUCATION WILL INCREASINGLY BECOME A KEY PLATFORM FOR WORK

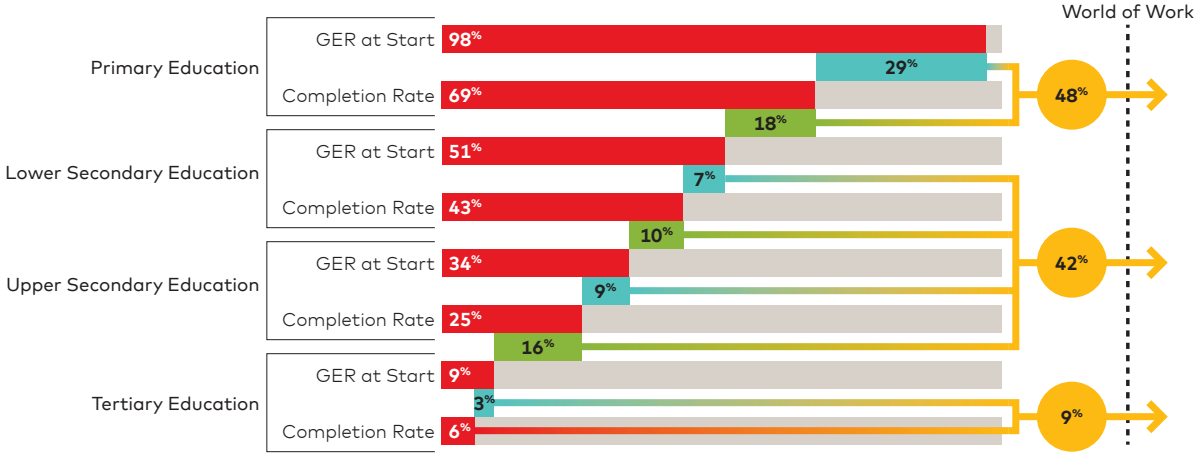
Demand for secondary education in Sub-Saharan Africa will nearly double by 2030, with enrolment rising from a total of 60 million youth in lower and upper secondary in 2015 to an estimated 106 million enrolled by 2030 if current trends persist.[75] That increase in demand is driven in part by the remarkable strides African governments have made in expanding access to and completion of primary education and in part by the growing youth demographic in Africa.

The vast majority of youth in Africa leave the education system and transition into the world of work before entering tertiary education. Of the 98 percent of young people who enrol at the primary level in Sub-Saharan Africa, only nine percent make it to tertiary education and only six percent graduate.[76] In North Africa, while the gross enrolment rate at the tertiary level is higher, at 34 percent, over two-thirds of the population still transition into work without a tertiary education.[77] Figure 1.7 shows current enrolment rates compared to completion rates at each level of education, providing an estimate of the share of the population transitioning into the labour force from that level. At present, 42 percent of young people in Sub-Saharan Africa are transitioning into the world of work from the secondary education system, many without having completed the level. It is expected that the share will grow as governments expand secondary education to meet increasing demand.

Reimagining secondary education as a platform for work will be a paradigm shift.

FIGURE 1.7

TRANSITIONS OUT OF THE EDUCATION SYSTEM BY LEVEL IN SUB-SAHARAN AFRICA



Universal enrolment
Young people who leave the education system in-cycle
Young people who leave the education system between cycles

Estimates of young people leaving the education system during and between cycles of education have been constructed based on the difference between gross enrolment and completion. Note that they may underestimate transitions out of the education system as completion rate defined by UIS does not account for some overaged students.

Source: Gross Enrolment Ratios and Completion Rates, Sub-Saharan Africa (SDG Region) based on most recent available data (2017) from the UNESCO Institute for Statistics (UNESCO-UIS) database, accessed August 2019.

Robust tertiary systems that prepare youth for highly technical and specialized roles are instrumental for the advancement of Africa's economic transformation, and are central to the African Union's Agenda 2063.[78,79] While preparing students for tertiary education remains critical, the majority of young people will seek preparation to enter the workforce through expanding secondary education systems. As access to secondary grows, that level of education provides an opportunity for governments to deliver a broad range of work-relevant skills at scale.

Reimagining secondary education as a platform for work will be a paradigm shift. Until now, secondary education in Sub-Saharan Africa has served primarily as a stepping stone to tertiary education. Access has historically been limited to a privileged few, with high-stakes examinations serving as a winnowing device that limits progression through the education system for many young people. Curricula and pedagogical approaches have historically been highly academic and theoretical in nature, often not relevant to context or reflective of indigenous knowledge, and delivered primarily with the intent to prepare youth for further studies. Overly theoretical curricula with a limited focus on relevant skills can contribute to disengagement and dropout when students cannot obtain knowledge and competencies relevant to their contexts.[80]

Secondary education systems across Africa have foundations inherited from the colonial era. The impact of that legacy is evident in the language of instruction and the prevalence of selective boarding schools at the secondary education level. Boarding schools have some advantages in terms of improving access for those in remote areas by removing the distance barrier, and for girls who are disproportionally affected by distance to school facilities. They are, however, very resource-intensive, contributing to the high unit cost of delivering secondary education, and diverting resources away from broader and more equitable expansion of access.[81] While access is expanding, many countries in Sub-Saharan Africa have yet to make the transition from an elitist model that promotes a select few, to a mass system that extends a 12-year basic education cycle to the majority.

Secondary education systems in Africa have not traditionally been focused on providing youth with knowledge and skills to help them navigate the labour market. It is at that formative level that there is great potential to help build the competencies and attitudes needed for a skilled, effective, and adaptable workforce. Many African governments have made progress on implementing curriculum reforms at the secondary level. Greater focus is needed, however, on updating both what is taught (see Chapter Two) and how it is taught (see Chapter Three) to ensure that secondary education is fit for purpose and able to provide skills relevant to the future of work to a much broader group of young people.

While preparing students for tertiary education remains critical, the majority of young people will seek preparation to enter the workforce through expanding secondary education systems.

It is also critical to acknowledge that secondary education has purpose and benefit that extend far beyond workforce development. As acknowledged under the United Nations Convention on the Rights of the Child, Article 28, every child has a right to access secondary education.[82] In addition to its intrinsic value, secondary education has wide-ranging benefits for individual and societal development, from increasing resiliency to climate change and natural disaster[83] to promoting engaged citizenry.[84] Secondary education for girls is associated with lower fertility rates, greater participation in the labour force, and higher earnings. Girls' education also has positive impacts on the future health and education levels of their children.[85]

1.5 EXPANDING ACCESS TO HIGH-QUALITY, RELEVANT SECONDARY EDUCATION IN AFRICA IS AN URGENT AND UNPRECEDENTED CHALLENGE

Identifying promising approaches to expanding access to high-quality, relevant secondary education in Sub-Saharan Africa is an urgent priority. Three factors make the challenge of expanding secondary education in Sub-Saharan Africa unprecedented. First, demand for that level of education is expanding rapidly as a growing share of a growing population transitions into lower secondary education. At the same time, there is "unfinished business" at the primary level, with persistent inequities in access and low levels of learning. Finally, factors that limit economic growth are likely to constrain domestic resources for investment in education.

Students particpate in a workshop at African Leadership Academy in South Africa. Photo courtesy of African Leadership Academy.

1.5.1 UNPRECEDENTED INCREASE IN DEMAND

The projected rate of increase in demand for secondary education in Sub-Saharan Africa is unprecedented. As noted above, demand for secondary education in Sub-Saharan Africa will nearly double by 2030, with enrolment rising to 106 million in 2030, if current trends persist.[86] No other region has seen such a rapid increase in demand for secondary education.

Demand for secondary education is increasing due to concerted policy efforts made by governments across the region to increase enrolment and completion at the primary level. Under the Education for All Framework and the Millennium Development Goals, gross enrolment rates for primary education have increased to nearly 100 percent in the region. In Sub-Saharan Africa, completion and transition rates trail gross enrolment and, while increasing, rates of progress have slowed in recent years.

Those trends are intensified by population growth. The region is set to increase its share of the global youth population from 15 percent to 26 percent between 2015 and 2030, which implies a projected one-third increase in the population of school-aged children during that period, while the size of that population in all other developing regions will see a decrease.[87]

Secondary education systems in Sub-Saharan Africa do not currently have the capacity to accommodate demand. According to one estimate, just one in three adolescents in Sub-Saharan Africa who qualify for secondary school can currently be accommodated due to limited places. That is particularly the case for youth living in rural areas, where secondary school facilities are scarcer.[88]

1.5.2 GAPS IN ACCESS AND LEARNING AT THE PRIMARY LEVEL

The expansion of the secondary education system will take place in a context where there are still gaps in enrolment and completion at the primary level. There is a significant gap between primary school enrolment and completion. Despite improvements, the overall primary completion rate for Sub-Saharan Africa in 2018 was 68.8 percent.[89] Further, there are significant inequities in access and completion across gender, ethnic and linguistic backgrounds, race, geographic location, wealth, and disability. Those disparities lead to an unequal starting point for young people's transition into secondary education, and eventually into work.

In addition to low completion rates for some groups, poor quality education at the primary level results in low levels of the critical foundational skills of literacy and numeracy (see Figure F1.7). Analysis by the Education Commission finds that if current trends continue, in low-income countries — many of which are in Sub-Saharan Africa — just three out of 10 school-age children will be on track to achieve primary-education-level skills.[90] That limits opportunities for primary school leavers and means that youth who enter secondary education are often not equipped with the basic literacy and math skills needed to engage with more sophisticated curricula in lower secondary education. Poor performance in learning key foundational skills highlights the need to continue investing in increasing the quality of primary education in addition to working towards greater equity in access.

1.5.3 CHALLENGING ECONOMIC CONTEXT

The possibility of increasingly constrained fiscal space due to economic headwinds in the region may limit expansion of secondary education. Governments account for the majority of education spending in Africa.[91] Primary education in Sub-Saharan Africa expanded during a period of high economic growth driven in part by a boom in commodity prices. A combination of economic growth, a growing share of GDP devoted to education, and increased education aid led to much faster annual growth in education budgets between 2000 and 2014 (four to five percent) than between 1980 and 2000 (only about one percent).[92] Lower projected economic growth would reduce tax revenues available for education in coming years.

The IMF points to an economic recovery in the region, but there is duality in growth performance and prospects.[93] Aggregate growth forecasts mask considerable differences in projected growth within the region. Many of the non-resource-intensive countries in the region are expected to grow at five percent or more and see a faster rise in income per capita than the rest of the world on average over the medium term. However, the remaining countries, comprising mostly resource-intensive countries, are expected to fall behind. In those lower-growth countries, the likelihood of sustained low growth over the medium term would limit the fiscal space for education funding.

Governments account for the majority of education spending in Africa.

The implications of a slower rate of economic growth on the fiscal space to invest in education could be significant. Between 2015 and 2030, Sub-Saharan Africa will need much higher growth in education funding to reach universal basic education than other regions, given its low starting point in terms of enrolment and completion.

The challenges are unprecedented, and the need is urgent, but if investments are made now, secondary education has transformative power. As governments think through policies to stimulate economic growth, promote workforce development, and enable the creation of knowledge-based economies, they cannot afford to overlook the role of secondary education. With demand for secondary education increasing rapidly, its role in preparing youth to transition into the labour force will become increasingly important. Now is the time to rethink what skills young people require, and to intentionally redesign secondary education systems with those skills in mind so that they better fulfil their role as a platform for work.

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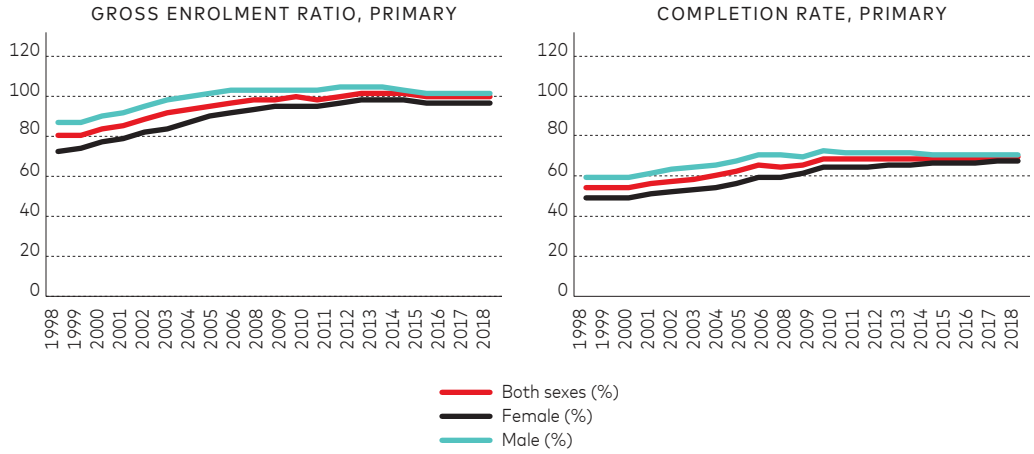
Students in science class as part of the Mastercard Foundation Leaders in Teaching program.

FOCUS

THE STATUS OF SECONDARY EDUCATION IN SUB-SAHARAN AFRICA

African education systems have made major strides in increasing access and completion of primary education over the past two decades. The number of children enrolled in primary schools in Sub-Saharan Africa increased from 81 million in 1998 to 169 million in 2018. Over the same period, gross enrolment at the primary level increased from 80 percent in 1998 to nearly 99 percent in 2018.[94]

FIGURE F1.1
GROSS ENROLMENT RATE IN PRIMARY (LEFT PANEL); COMPLETION RATE IN PRIMARY (RIGHT PANEL) FROM 1998 TO 2018 IN SUB-SAHARAN AFRICA



Source: Gross enrolment rate and primary completion rate based on most recent available data from UNESCO Institute for Statistics (UNESCO-UIS) database, accessed January 2020.

Despite that progress, improvement in enrolment and completion rates in primary have stalled in recent years. Further, there are significant disparities between the most and least advantaged in society (Figure F1.2), which affect the ability of the most marginalized to transition into secondary education.

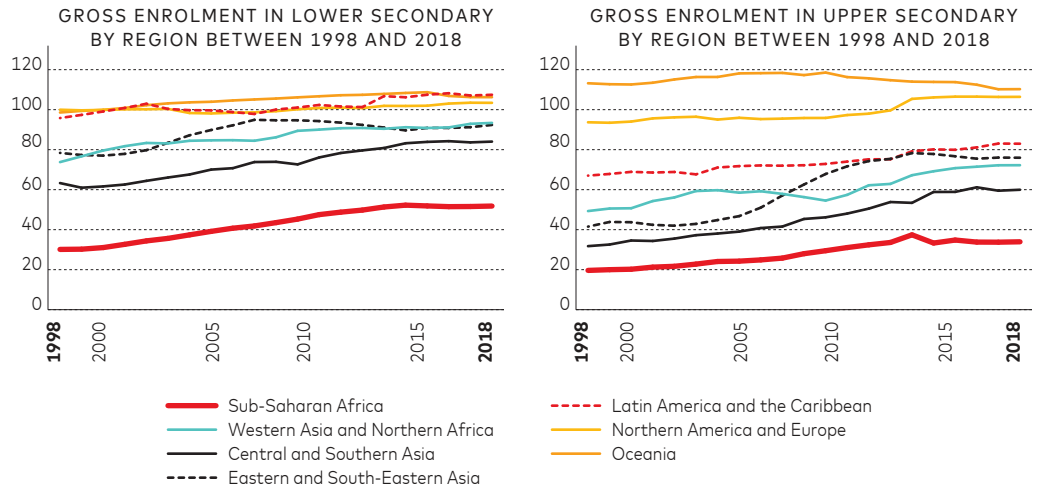
FIGURE F1.2
DISPARITIES IN PRIMARY SCHOOL COMPLETION RATES

Source: Asma Zubairi and Pauline Rose, "Equitable Financing of Secondary Education in Sub-Saharan Africa, Secondary Education in Africa Background Report" (Toronto: Mastercard Foundation, February 2019), p. 8, drawing on most recent available data from the UNESCO World Inequality Database on Education (UNESCO-WIDE) database, accessed and updated December 2019, reformatted by authors.

Note: Based on household data collected by Multiple Indicator Cluster Surveys (MICS) and Demographic Household Surveys (DHS) between 2006 and 2016.

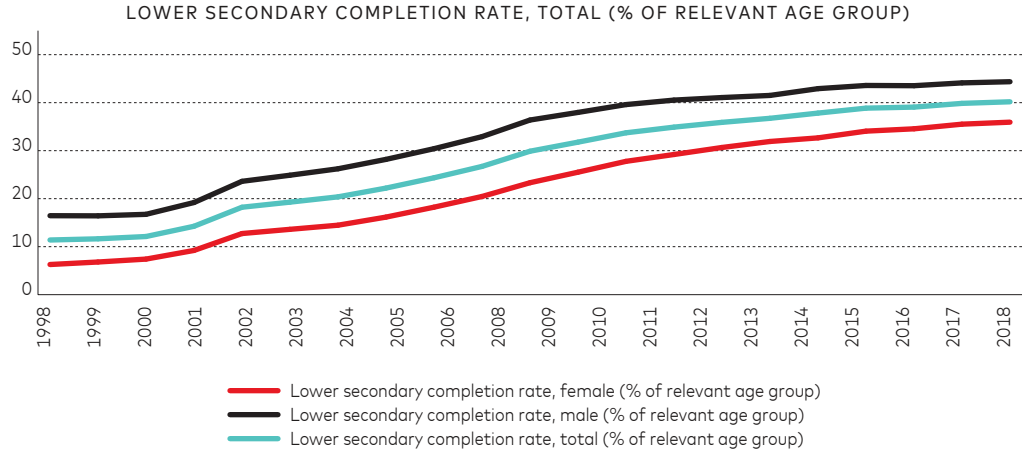
Enrolment at the secondary level has been increasing steadily over the past two decades, with gross enrolment rates (GER) increasing from 29 percent in 1998 to 51 percent in 2018 in lower secondary, and from 20 percent to 34 percent in upper secondary. While progress has been made, enrolment rates at the secondary level still lag well behind other regions of the world, with the global average GER at 85 percent for lower secondary and 67 percent for upper secondary.[95]

FIGURE F1.3
TRENDS IN GROSS ENROLMENT IN LOWER SECONDARY AND UPPER SECONDARY



Source: Gross enrolment ratios based on most recent available data from the UNESCO Institute for Statistics (UNESCO-UIS) database, accessed December 2019.

FIGURE F1.4
COMPLETION RATES IN LOWER SECONDARY FROM 1998 TO 2018 IN SUB-SAHARAN AFRICA



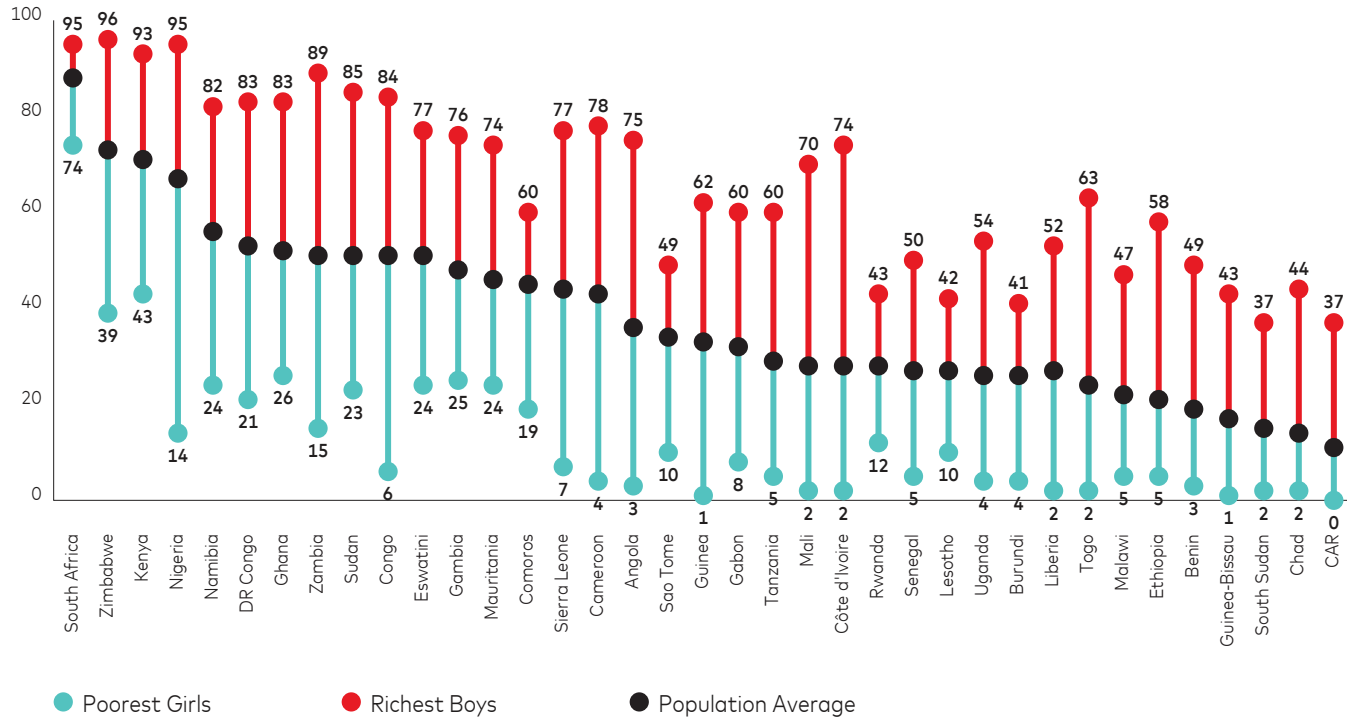
Source: Lower Secondary Completion Rates (World Bank Indicator), Sub-Saharan Africa, based on most recent available data from the World Bank database, accessed January 2020.

Note: Comparable completion rates for upper secondary are not available for SSA from the UIS database.

Similar to trends in primary, national averages mask considerable inequality in access and completion at the secondary level. There are more than 15 countries where less than five percent of the poorest rural girls complete lower secondary. Some countries, such as Sierra Leone and Senegal, have implemented effective reforms that are bearing fruit in the form of improved attendance, completion, and equity. However, it has been estimated that by 2030, average completion rates in Sub-Saharan Africa will still only reach 65 percent at the lower secondary level and 43 percent at the upper secondary level.[96] A very large number of young people are thus missing out on opportunities to gain the skills they will need to improve their livelihoods.

Many factors contribute to those disparities. Students with lower socioeconomic status face financial barriers to entry such as school fees or the need to find work to make economic contributions to the household. Rural-urban inequalities are significant. For example, according to household survey data, the rate of out-of-school students from the poorest quintile in rural Burundi is twice the rate of urban areas.[97] Gender also limits access, particularly among poorer groups and in rural areas. Cultural norms often undervalue girls' education and lead to them staying home to assist with domestic work. In addition, girls confront the risks of early pregnancy, child marriage, and in some cases sexual violence, all of which impede their access to education.

FIGURE F1.5
DISPARITIES IN LOWER SECONDARY SCHOOL COMPLETION RATES



Source: Asma Zubairi and Pauline Rose, "Equitable Financing of Secondary Education in Sub-Saharan Africa, Secondary Education in Africa Background Report" (Toronto: Mastercard Foundation, February 2019), p. 8, drawing on most recent available data from the UNESCO World Inequality Database on Education (UNESCO-WIDE) database, accessed and updated December 2019, reformatted by authors.

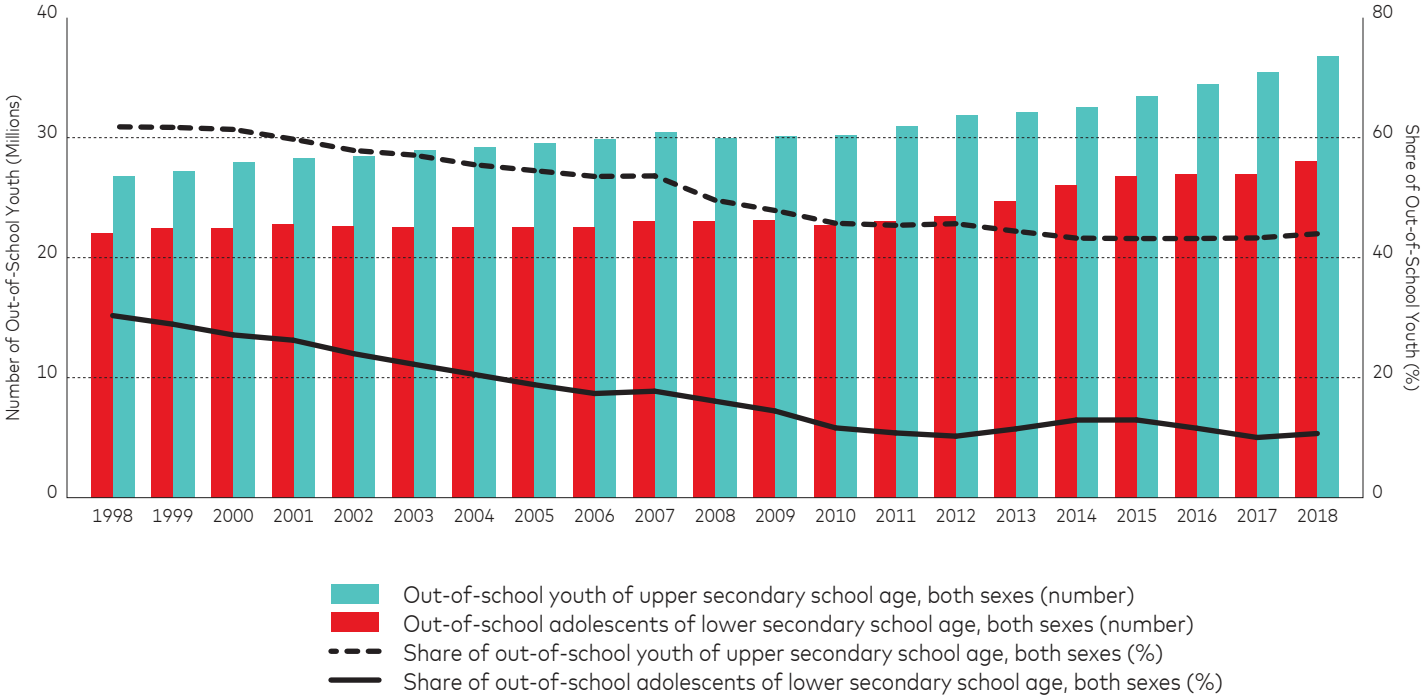
Note: Based on household data collected by Multiple Indicator Cluster Surveys (MICS) and Demographic Household Surveys (DHS) between 2006 and 2016.

Despite considerable growth in secondary school enrolment, 65 million young people of secondary school age are still out of school in Sub-Saharan Africa today.[98] The share of young people of lower secondary age who are out of school has fallen from nearly 50 percent to 37 percent over the last two decades, showing sustained but slow progress. The share of young people of upper secondary school age who are out of school is much higher, yet shows a similar slow but sustained downward trajectory. Despite those improvements, nearly 60 percent of young people of upper secondary school age remain out of school in Sub-Saharan Africa. Further, while progress has been made on reducing the share of young people out of school, population growth has meant that over that two-decade period, the absolute number of young people not in the education system has grown.

Increased participation in primary and secondary education in Africa over the past two decades has not translated into strong learning outcomes. For example, in Sub-Saharan Africa, only one in 10 students who enrol in secondary school has reached the minimum level of proficiency in reading and mathematics.[99] Few African countries participate in international standardized secondary assessments, but data from those that do indicate low levels of learning. In PISA tests in the only two participating countries in Sub-Saharan Africa, Senegal and Zambia, only 8.7 percent and five percent of students respectively reached the minimum standard (level 2) in reading; for math, the figures were still lower: 7.7 percent and 2.3 percent, respectively.[100]

FIGURE F1.6

OUT-OF-SCHOOL YOUTH OF LOWER AND UPPER SECONDARY AGE IN SUB-SAHARAN AFRICA

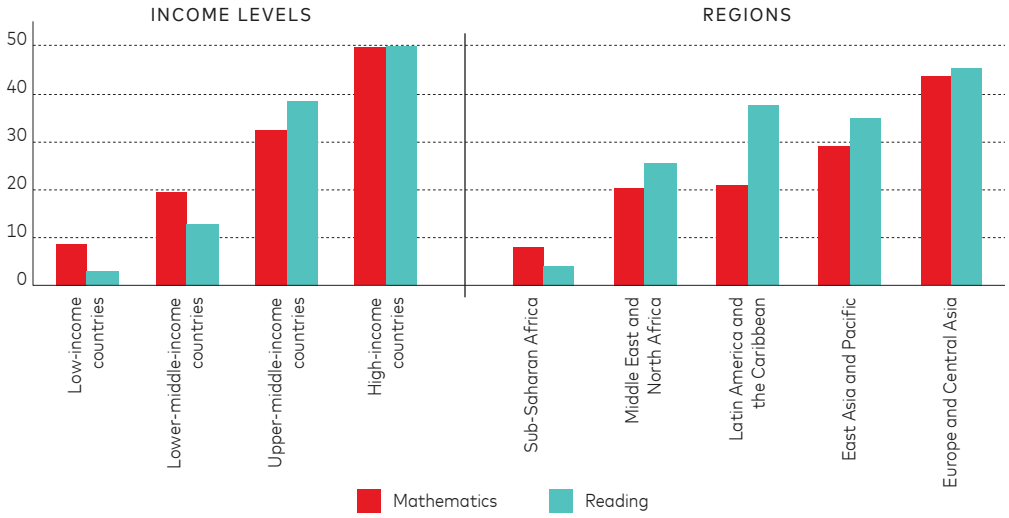


Source: Out-of-school rates, Sub-Saharan Africa (SDG Region) based on most recent available country data from the UNESCO Institute for Statistics (UNESCO-UIS) database, accessed December 2019.

Learning gaps at the primary level impact secondary education as foundational skills provide the building blocks for all other learning. Figure F1.7 shows the share of young people in late primary school who meet minimum standards in mathematics and reading. That crisis in learning is particularly acute in low-income countries many of which are in Sub-Saharan Africa.

FIGURE F1.7

MEDIAN % OF STUDENTS IN LATE PRIMARY WHO SCORE ABOVE A MINIMUM PROFICIENCY LEVEL ON A LEARNING ASSESSMENT

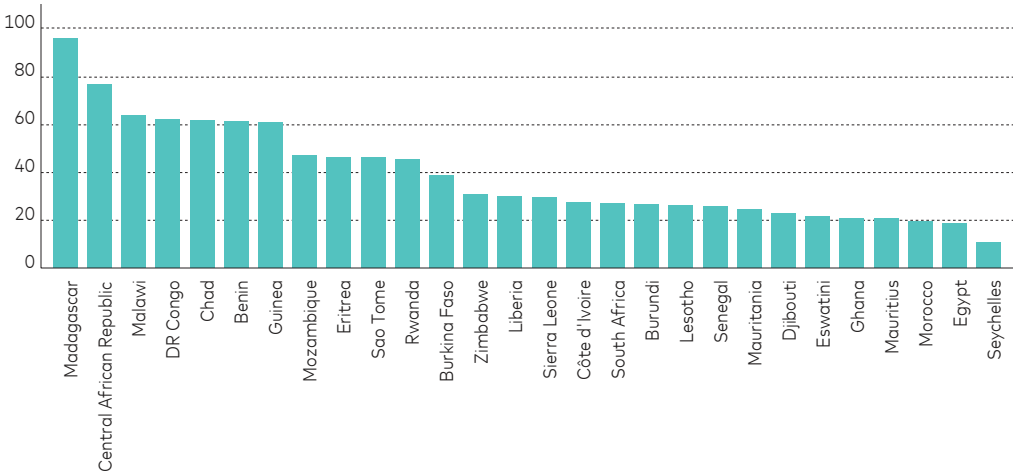


Source: World Bank, "Learning to Realize Education's Promise," World Development Report, World Bank Group Flagship Report (Washington, D.C: The World Bank, 2018), p. 8, reformatted by authors.

Whether integrated into or alongside general education, secondary-level technical and vocational training (TVET) has yet to be leveraged to its full potential. While many governments have attempted to expand formal TVET, only approximately seven percent of school-aged students are enrolled in TVET programs in Sub-Saharan Africa.[101] In Sub-Saharan Africa, most TVET provision focuses on the upper secondary age group, with 13 percent enrolled at that level compared to two percent at lower secondary. Gender inequalities are more pronounced in the TVET sector, with young women making up 35 percent of those enrolled at the lower secondary level and 42 percent of those enrolled at the upper secondary level. Though the share of students by gender in vocational programs begins to level out as the years go on, the data demonstrate the inequalities girls continue to face in male-dominated subjects.[102] Furthermore, many technical subjects lack up-to-date equipment to provide students with the hands-on and practical training needed to develop new skills in those subjects. That makes the costs of delivering TVET considerably higher than those of general secondary education and presents a trade-off that must be considered when creating the right mix of skills development opportunities in a given context.

Gaps in skills development and learning outcomes often reflect a shortage of trained teachers and school conditions that inhibit students' access to learning. Despite the adoption of competency-based curricula in many Sub-Saharan African countries, high student-teacher ratios and lack of textbooks and other teaching aids (such as lab equipment and computers) hamper the implementation of learner-centred approaches. Figure F1.8 highlights the wide range of pupil to trained teacher ratios in secondary education across countries in Africa where data is available, demonstrating the significant teacher shortages in many countries.

FIGURE F1.8
PUPIL-TRAINED TEACHER RATIOS IN SECONDARY EDUCATION IN SELECT AFRICAN COUNTRIES



Source: Pupil-trained teacher ratios in secondary based on most recent available country data from the UNESCO Institute for Statistics (UNESCO-UIS) database, accessed January 2020.

Note: All country data from 2016 to 2018. A trained teacher is defined as "one who has received at least the minimum organized pedagogical teacher training pre-service and in-service required for teaching at the relevant level in a given country" by UNESCO-UIS, "Pupil-Trained Teacher Ratio," accessed January 31, 2020, http://uis.unesco.org/en/glossary-term/pupil-trained-teacher-ratio.

Difficult classroom conditions are exacerbated for students with disabilities, who rarely receive the instructional support they need. Secondary school completion rates for students with disabilities thus lag behind those of students without disabilities: For example, in Nigeria, 40 percent of students with disabilities complete secondary education, compared with 56 percent of those without; in Chad, virtually no students with disabilities complete secondary education, compared with eight percent of students without.[103]

The lack of school sanitation facilities is often another obstacle, especially for girls. Of African countries with data, the percentage of schools with adequate sanitation varies from 12 percent in Sierra Leone to 82 percent in The Gambia.[104]

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CHAPTER TWO

DEVELOPING RELEVANT KNOWLEDGE AND SKILLS

Workshop materials at African Leadership Academy in South Africa. Photo courtesy of African Leadership Academy. Reproduced with permission.

KEY TAKEAWAYS:

- **The changing nature of work in Africa will increase uncertainty and the pace of change, raising the premium on skills that help young people be adaptable, resilient, and creative problem solvers.** African youth increasingly require a broad set of 21st-century and digital skills that build on solid foundational literacy and numeracy — skills that improve their ability to navigate an increasingly interconnected, rapidly changing world. Stronger entrepreneurship and work-readiness skills are needed to enable young people to thrive as employees and employers. Secondary-level STEM, technical, and vocational skills are also increasingly critical to prepare young people for productive livelihoods in changing economies.

- **Foundational skills are the building blocks on which all other learning occurs.** Those skills underpin further learning and are associated with improved labour market outcomes, including in entrepreneurship. Given low levels of learning at the primary level, in the short term, it is critical that secondary education systems provide opportunities for remedial literacy and numeracy, including fluency in the language of instruction.

- **A more intentional focus on skill development is needed in many countries' secondary school curricula, with teacher training, learning materials, and assessment frameworks aligned with revised curricula.** Specifically, a stronger emphasis on learner-centred pedagogies is essential for opportunities to develop 21st-century skills, alongside substantial investment in learning materials tailored to new curricula, and in digital technology to allow students opportunities to practice digital skills. Reducing the frequency of high-stakes exams and designing assessments so that they test mastery of key skills could assist in effective implementation of skills-oriented curricula.

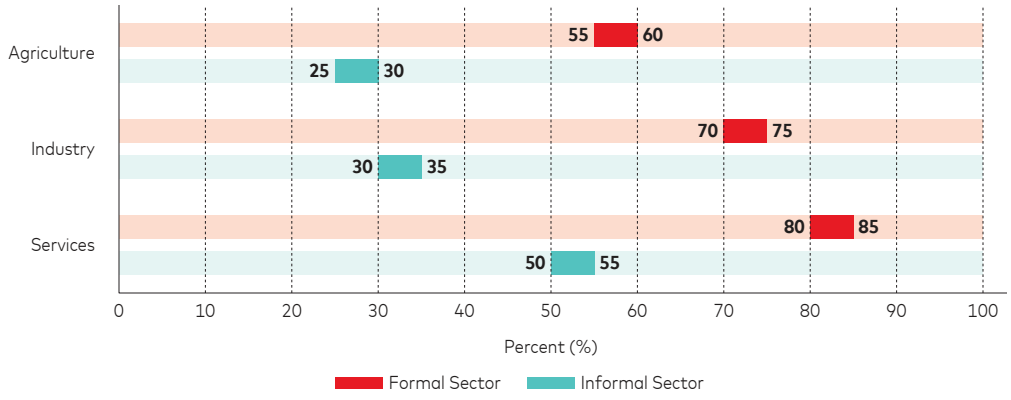
- **Co-curricular and extracurricular activities are an important vehicle for 21st-century skill development.** Activities such as arts, athletics, student leadership, and volunteer work are often overlooked ways to develop increasingly important 21st-century skills such as critical thinking, communication, creativity, collaboration, initiative, and perseverance. Co-curricular and extracurricular programs also offer a route to helping students develop entrepreneurship and work-readiness skills without overloading the curriculum.[105]

A student at school in Rwanda as part of the Mastercard Foundation partnership with Forum for African Women Educationalists (FAWE).

2.1 KEY SKILLS FOR THE FUTURE OF WORK

As African economies change, young people need knowledge and skills that respond to the trends and challenges that are altering the nature of work in both the formal and informal sectors. Employers and researchers increasingly identify 21st-century skills such as communication, analytical thinking, problem-solving, and creativity as insufficiently developed among job entrants, as critical constraints to business growth, and of ever-increasing importance. They also stress the growing importance of digital skills in economies that are increasingly digitalized.[106] For example, Figure 2.1 shows estimated percentages of jobs by sector that will require digital skills in Ghana. Both digital and 21st-century skills rest on the critical building blocks of foundational literacy, numeracy, and language skills, without which it is extremely challenging to develop more advanced skills.[107]

FIGURE 2.1
ESTIMATED PROPORTION OF JOBS IN GHANA REQUIRING DIGITAL SKILLS BY SECTOR IN 2030



Source: Adapted from data in IFC FC, "Digital Skills in Sub-Saharan Africa: Spotlight on Ghana" (Washington, D.C.: International Finance Corporation, 2019), p. 92–94.

In line with national economic transformation agendas, many national education strategies also prioritize greatly upskilling in science, technology, engineering, and mathematics (STEM), and technical and vocational skills. Governments increasingly see expanding the proportion of young people with those skills and providing opportunities to develop them to a more advanced level as critical to development objectives of moving towards more knowledge-based economies. Those objectives are reflected in the African Union's Continental Education Strategy 2016–2025.[108]

Stronger entrepreneurship skills are vital for the majority of young people who will need to create their own livelihoods

Background research for this report and the Mastercard Foundation's experience highlight the importance of and potential for developing entrepreneurship and broader work-readiness skills in secondary education. Stronger entrepreneurship skills are vital for young people who will need to create their own livelihoods (the majority for the foreseeable future) and can increase young people's productivity in employment. Work-readiness skills help young people find and perform better in work and are broadly transferable between employment and entrepreneurship.

There are many different frameworks for classifying and defining skills, but among them, a consensus is emerging about the key skills necessary to prepare youth for the future of work. Those include seven sets of skills: (1) foundational skills, including literacy, numeracy, and fluency in the language of instruction; (2) 21st-century skills; (3) digital skills; (4) STEM skills and knowledge; (5) technical and vocational skills; (6) entrepreneurship skills; and (7) work-readiness skills.

TABLE 2.1
KEY KNOWLEDGE AND SKILLS FOR THE FUTURE OF WORK

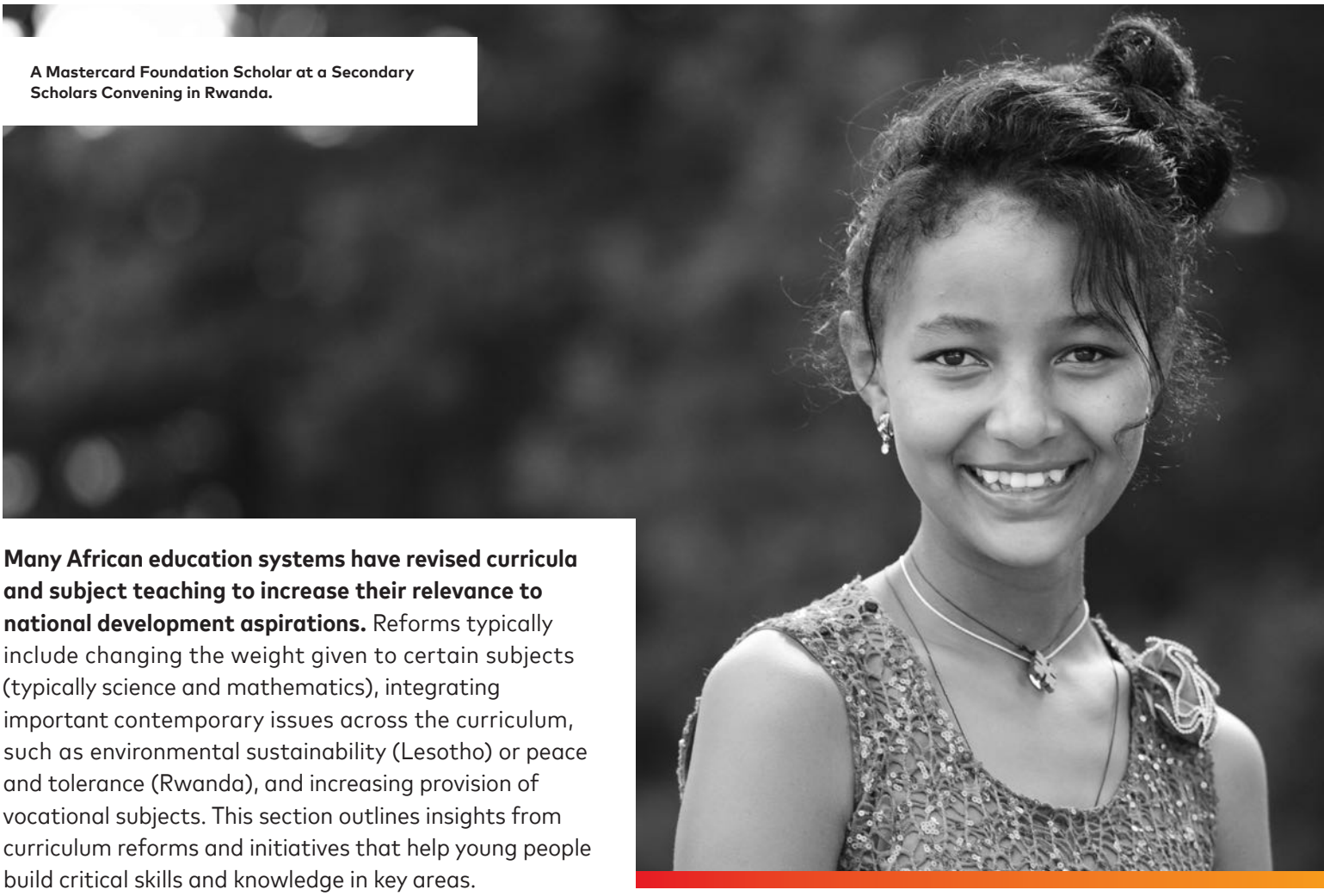
TYPE OF SKILL	DEFINITION AND REASON FOR IMPORTANCE
Foundational skills	**What?** Basic skills or competencies which enable the acquisition of new skills and knowledge and are critical for everyday life and work. These include literacy, numeracy, and fluency in the language of instruction, which is often the official language or the language of business. **Why?** Foundational skills are the building blocks for all other learning. Further, competency in foundational skills is associated with increased employment rates and earnings.[109]
21st-century skills[110]	**What?** The OECD definition of 21st-century skills identifies the following elements:[111] • Learning and innovation skills: critical thinking, problem-solving, creativity, communication, and collaboration • Life and career skills: flexibility, adaptability, initiative, perseverance, and leadership **Why?** These skills are considered to be in short supply and constitute an increasingly significant constraint to business growth and economic transformation.[112] Twenty-first-century skills are building blocks for higher-order cognitive and technical skills, and enable adaptation to and adoption of new technologies.[113] Developing these skills will have positive effects for society overall, as increasingly the skills needed for work and those required for learning, personal empowerment, and active citizenship are converging.[114]
Digital skills	**What?** Capabilities and knowledge required to engage with digital technologies for social, political, and economic purposes.[115] **Why?** With the spread of digital technology, digital skills are increasingly critical for effective employment and entrepreneurship; people without digital skills are at risk of being confined to low-return work.[116] Increasingly, employers are seeking workers with intermediate-level skills as well as basic skills in keyboarding, using smartphones, and sending email.[117] Across numerous fields of self-employment and entrepreneurship, from accessing the gig economy and digital marketing to checking market data for agricultural produce, skills in smartphone use are increasingly vital.
Science, Technology, Engineering, and Mathematics (STEM) knowledge and skills	**What?** STEM courses emphasize application of knowledge, skills, and values from the disciplines of science, technology, engineering, and mathematics to help students solve problems encountered in the real world.[118] **Why?** STEM skills are important for a wide range of jobs, often those with higher returns, and underpin many countries' economic transformation strategies.[119]
Technical and vocational skills	**What?** Knowledge, practical competencies, know-how, and attitudes necessary to perform a certain trade or occupation.[120] Many of these skills build on STEM skills. **Why?** Adequate entry-level technical and vocational skills are required by youth to effectively and efficiently perform job- and business-specific tasks, while advanced skills are needed by countries to foster economic transformation through development of catalytic sectors. Technical and vocational skills can become outdated quickly, particularly as technology changes, so upskilling is essential to ensure continued relevance.
Entrepreneurship skills	**What?** Entrepreneurship skills include 21st-century skills related to problem-solving, creativity, communication, and perseverance, and specific skills related to financial literacy and business management.[121] **Why?** These skills are vital both for the millions of youth who will need to create their own livelihoods and for young people in employment to help businesses grow and thrive.
Work-readiness skills	**What?** Skills to find and succeed in work. These include networking, information seeking, understanding employment and employers, and managing the job search process (e.g., CV writing and interviewing). There is significant overlap with 21st-century skills, entrepreneurship skills, and fluency in an international language.[122] **Why?** When recruiting school leavers,[123] employers recognize a significant deficit in these skills, which are particularly important for finding opportunities and succeeding in the workplace.

2.2 CURRICULUM REFORMS TO BOOST SKILL DEVELOPMENT

Secondary school curricula across Africa are increasingly placing greater emphasis on the core skill sets outlined in Table 2.1. In some countries, that has involved simultaneous reform of the entire curriculum, as in Rwanda, a phased approach, as in Kenya, or a focus on specific components of the curriculum, as in Nigeria; in others, more targeted reforms have been made to boost emphasis on or update the curriculum within specific subjects. To be effective, those reforms require a substantial investment in teacher training and in the development of learning materials, and assessment systems that are aligned with the curriculum.

A challenge for all governments is to support the development of skills that are currently in demand, while anticipating those that will be required in the future. While that is a global challenge, many African education systems must also contend with gaps in foundational skills, meaning that an additional investment to "catch up" is required. Education systems across the African continent reflect highly varied environments, from middle-income and rapidly growing economies, such as Ghana, Mauritius, and South Africa, to countries with significant demographic growth and growing demand for secondary education but limited resources to finance that expansion, such as Malawi and Mali. Others, such as Sierra Leone, Somalia, and South Sudan, are responding to the challenges of re-establishing effective secondary education in conflict or post-conflict contexts.[124]

Secondary education curriculum reforms need to strike a balance to meet the needs of young people who will enter the labour force directly from secondary education and those who will proceed to post-secondary [tertiary education, or technical and vocational education and training (TVET)]. That means ensuring that the basic education cycle (generally ending at grade 9–10) allows all young people to develop foundational, 21st-century, and digital skills to a level that facilitates entry into work. It also means ensuring that young people have opportunities to develop essential work-readiness and entrepreneurship skills in lower secondary education. At the same time, curricula need to cover enough academic content to prepare young people to take different pathways through the next stage of education. Countries such as Kenya and Nigeria have recently redesigned their education pathways to facilitate skills development for young people taking those different routes.[125]



A Mastercard Foundation Scholar at a Secondary Scholars Convening in Rwanda.

Many African education systems have revised curricula and subject teaching to increase their relevance to national development aspirations. Reforms typically include changing the weight given to certain subjects (typically science and mathematics), integrating important contemporary issues across the curriculum, such as environmental sustainability (Lesotho) or peace and tolerance (Rwanda), and increasing provision of vocational subjects. This section outlines insights from curriculum reforms and initiatives that help young people build critical skills and knowledge in key areas.

2.2.1 BUILDING FOUNDATIONAL SKILLS

A significant proportion of children across Sub-Saharan Africa are entering secondary schools with very low levels of numeracy, literacy, and competence in the language of instruction. Programme d'analyse des systèmes éducatifs de la CONFEMEN (PASEC) data from 2015 found that across the 10 francophone countries[126] taking part in the assessment, on average, 60 percent of upper primary school students were performing below expected competency levels in math and language skills.[127] Performance also differs significantly by income level. In Tanzania, for example, pass rates for non-poor students in early grade reading assessments undertaken in 2013 were double those for poor students, with similar differentials in Kenya.[128] Low learning at the primary level has significant implications for learning in secondary education. One indicator of that is test scores in Sub-Saharan African countries participating in international assessments, such as the Trends in International Mathematics and Science Study; those scores rank among the lowest in the world.[129]

Strengthening teaching of numeracy, literacy, and language skills at primary school is critical to ensuring that students enter secondary school prepared to learn more advanced content and skills. It is also much more cost-effective to focus on the development of such skills at the primary level rather than to divert secondary-level teachers, who often command higher salaries as a result of more in-depth and specialized training. Many African countries are investing strongly in improving the development of foundational skills at the primary level, through strengthening teacher education, through specific support to help children transition effectively from home language learning to learning in a national or international language, and through a range of initiatives to improve learning outcomes, such as Teaching at the Right Level[130] in a number of countries across Africa. Another example is Tusome[131] in Kenya (see Box 2.1). At both the primary and secondary level, ensuring all students have access to up-to-date textbooks and learning materials is a key part of strengthening foundational skills development.

BOX 2.1
PROMISING PRACTICE: IMPROVING LITERACY AND LANGUAGE LEARNING AT PRIMARY SCHOOL — KENYA'S TUSOME PROGRAM

Kenya's Tusome (Let's Read) program has been successfully implemented throughout the country. It involves coaching grade 1 and 2 teachers in techniques for literacy learning and providing structured learning materials and regular support visits from Curriculum Support Officers. Evaluations have found significant increases in the proportion of grade 2 children who met learning benchmarks in English and Kiswahili (from 34 percent to 65 percent and 37 percent to 67 percent, respectively). A study of the effective scale-up of this program suggests that a critical element has been the development of a shared commitment to Tusome among teachers and school leaders that has led to effective implementation, and a network of Curriculum Support Officers who visit teachers and provide instructional support.[132]

A student in class in Senegal as part of the Mastercard Foundation partnership with Education Development Centre, Inc.

Stronger foundational skills are also necessary to help students develop more advanced skills in other fields. For example, the ability to use subject-specific vocabulary and writing genres, visualization skills, and the use of equations are integral to STEM education.[133] Likewise, effective learning of digital and technical skills depends on proficiency in numeracy and literacy, and in a language that enables the use of common mobile phone and computer applications.[134]

Improving the quality of language teaching is an important pathway to enhancing learning at both primary and secondary school. Lack of fluency in the language of instruction is a major impediment to students' learning.[135] In most African countries, students make the transition from learning in their home language to learning in the official language of instruction — usually an international language, such as English, French, Arabic, or Portuguese — during primary school, and secondary education largely or exclusively takes place in that language. Ensuring students arrive in secondary education equipped to learn in the language of instruction means investing significantly in improving the quality of literacy and language teaching in primary schools.

Technology can play a role in enhancing foundational skills. There are a growing number of examples of technology-supported approaches to strengthening language and mathematics learning, particularly in primary schools, but with increasing uptake in secondary schools. These include interactive radio, as well as computer and tablet-based programs. For example, Cape Verde's Projeto PALOP provided twenty-minute-long interactive radio broadcasts for grade 4–8 students and their teachers, focusing on strengthening Portuguese language and mathematics skills. An evaluation found that children who had access to PALOP broadcasts had higher test scores in Portuguese and math than those who did not. Private schools are often at the forefront of adopting digital technology to boost learning — for example, South Africa's SPARK chain, where students spend 40–80 minutes a day in learning labs, and Nova Pioneer Schools in Kenya and South Africa, which also use a blended learning approach.[136]

Students are taking advantage of the Internet for additional tutoring, remediation, and exam preparation. One of the biggest technology-related growth areas in secondary education is taking place in after-school and at-home online tutoring, remediation, and exam preparation services. In South Africa, numerous NGOs run after-school tutoring programs using secondary school labs and providers such as Educate!, Develop, Learn for Life (EDL) Foundation's Edutrac. Online fee-based tutoring programs like BrightSparkz or PaperVideo proliferate to meet demand from those families who can afford to pay. In the Western Cape Province, Game Changers provides quality after-school programming, with and without technology, to learners in no- and low-fee schools. The Kenyan company Eneza delivers educational resources to remote schools through low-cost mobile technology. The platform runs mainly as an exam preparation and learner scaffolding platform, with data suggesting that students using the platform improved their performance on the Kenyan national secondary exam by about five percent, while the most active participants performed 15 percent better overall.[137]

Additional support and remediation will be needed in lower secondary education for students leaving primary school without adequately developed foundational skills. Research for this report found no evaluated examples of remediation programs at secondary school beyond initiatives such as homework clubs, which have been effective in improving test scores and exam pass rates in Ethiopia, Kenya, and Malawi.[138] Those initiatives, however, are often dependent on donor funding and rarely implemented at scale. Greater attention to strengthening foundational literacy, language, and mathematics skills at the secondary level, and dissemination of learning from those initiatives, are needed.

2.2.2 ENHANCING 21st-CENTURY SKILLS

"[21st-century skills] cannot be learned from a book. They are applied skills that require experiential, active learning opportunities. [21st-century] skills development requires exposing youth to new ideas and behaviours, and learning them requires appropriate levels of challenge, practice, feedback, and reflection. Instructors who provide support, coaching, and encouragement to youth are critical as youth learn and demonstrate the skills."[139]

As in other regions, national education policies and curriculum frameworks in Africa increasingly recognize that 21st-century skills are essential for today's workplace and the expected future of work. Given the pace of technological change, the skills individuals will need over a lifetime are likely to change multiple times, and so understanding how to learn, analyze, and solve problems, as well as flexibility to adopt new patterns of behaviour and ways of working, are key. Likewise, 21st-century skills underpin successful entrepreneurship, which is — and will continue to be — a major livelihood pathway for Africa's young people.

While there are numerous definitions of 21st-century skills (and other similar terms, such as soft skills, life skills, and transferable skills), most include critical thinking, problem-solving, communication, collaboration, and creativity.[140] All emphasize behavioural skills, such as resilience and adaptability, with some also stressing leadership. Some frameworks include digital skills — which we discuss separately below — and some have a greater focus on skills for lifelong learning.[141] While the skills that make up 21st-century skills are not new, we are using the term to highlight their increasing importance in the evolving work environment.

Students in Uganda as part of the Mastercard Foundation partnership with BRAC.

There is an increasing convergence between the skills needed for work and those required for learning, personal empowerment, and active citizenship. UNESCO has begun an initiative called Futures of Education: Learning to Become to "reimagine how knowledge and learning can shape the future of humanity and the planet" to 2050 and beyond. That initiative is underpinned by a philosophy of learning as a continuous process and by pedagogy that emphasizes imagination, critical thinking, analysis, and collaboration — all key tenets of 21st-century skills development.[142]

Calls for increased focus on leadership and values-based education are growing. The Continental Education Strategy for Africa 2016–2025 calls for a new African citizen who will be a change agent for the continent. In Singapore's Framework for 21st Century Competencies and Student Outcomes, values and character development are seen as critical to "shaping the beliefs, attitudes and actions of a person" and central to meeting the increasingly complex economic and social demands of a globalized world. Those values include respect, integrity, care, resilience, and harmony.[143] Box 2.2 shows how the Mastercard Foundation's Scholars Program seeks to develop transformative leadership.

There is an increasing convergence between the skills needed for work and those required for active citizenship.

BOX 2.2
MASTERCARD FOUNDATION SCHOLARS PROGRAM: CULTIVATING TRANSFORMATIVE LEADERSHIP

The Mastercard Foundation defines transformative leadership as "the act of engaging with others in an ethical manner to generate positive and lasting change" and involves both skills and mindsets. The Scholars Program provides financial support and other wraparound services that allow students whose talent and promise exceed their financial resources to complete their education. With a vision that education is a catalyst for social and economic change, the program focuses on developing leaders who are transformative, encouraging them to be active contributors in their communities. It develops transformative leadership over time through instruction, modelling, exposure to role models, the opportunity to practice leadership, and continuous reflection.

Increasingly, primary and lower secondary curricula in African countries include "life skills" as a subject or a set of competencies to be integrated across the curriculum. The range of content for life skills classes is wide, ranging from citizenship to bodily changes and sexual and reproductive health, through to activities specifically intended to help develop interpersonal and behavioural skills.[144] Kenya, Malawi, and Sudan have introduced life skills as a curriculum subject, while Rwanda, Tunisia, and Zambia mandate integration of these skills across subjects and stages of the education system.[145] Those classes provide a vehicle for the development of 21st-century skills.

Twenty-first-century skills can most effectively be developed through interactive pedagogies. As such, 21st-century skill development can generally be integrated into the curriculum, rather than needing a dedicated course or courses.[146] Skills in critical thinking, collaboration, communication, and problem-solving can be developed through analysis of problems in different disciplines and real-life situations. STEM subjects, with their emphasis on questioning, problem-solving, and collaboration, provide a particularly fertile context for developing these skills[147] (as in the iSpaces example from Tanzania, Box 2.4), but equally, they can and should be developed through learner-centred approaches in humanities and languages, vocational skills, and arts.

Skills in critical thinking, collaboration, communication, and problem-solving can be developed through analysis of problems in different disciplines and real-life situations.

Supporting 21st-century skill development requires teachers who have been trained to integrate interactive approaches as part of their suite of teaching and learning tools. Encouraging students to develop resilience by persisting with concepts, tools, or approaches they find challenging is a core part of teaching 21st-century skills. Pedagogical education plays an important role in helping teachers scaffold learning so that students are challenged and supported to achieve milestones and develop mindsets that encourage them to persevere. Collaboration, teamwork, and leadership skills can be developed through group work on projects; asking students to pose and creatively solve practical problems develops critical thinking; making presentations to the class can help students develop the confidence to speak in public.[148] Preparing teachers to use pedagogies conducive to 21st-century skill development will be covered in Chapter Three.

Extracurricular and co-curricular activities[149] play a critical role in helping young people develop 21st-century skills, as well as contributing to academic outcomes.[150] Some African curriculum frameworks, such as Zambia's, recognize the importance of extracurricular and co-curricular opportunities for developing "life skills and positive attitudes and behaviour patterns."[151] For example, drama and debating help develop self-confidence, communication, and critical thinking skills; sports, music, and drama can help develop creativity and teamwork skills. Taking responsibilities through formal roles such as prefects or organizing activities for younger students can provide leadership opportunities for older students. Youth ambassadors from across Africa who organized peer consultations for this report also highlighted the importance of extracurricular and co-curricular learning for 21st-century skills.

Initiatives with a particular focus (e.g., environmental protection, HIV/AIDS prevention) can help stimulate civic action or healthy behaviour, while empowerment-oriented clubs (often targeted at girls) assist in developing self-confidence, goal-setting, and leadership skills. While these activities can seem an unaffordable luxury, particularly in the context of teachers' heavy workloads, many can be undertaken with limited resources.[152]

2.2.3 EXPANDING OPPORTUNITIES TO LEARN DIGITAL SKILLS

In line with the African Union Continental Education Strategy 2016–2025, many education sector plans and strategies emphasize their intention to expand students' digital skills, often by initially prioritizing the strengthening of teachers' digital skills and by supporting the use of technology as a learning tool across the curriculum (see Chapters Three and Four). Where ICT and computing form part of the secondary curriculum, the skills learned vary considerably, from basic keyboarding skills and familiarity with word processing tools, to learning about hardware, to programming and app development. Table 2.3 provides an overview of efforts to increase access to digital skills in African secondary schools in selected countries, and also shows that the most common approach is to introduce ICT or computer studies classes in lower secondary education. A recent study by the International Finance Corporation suggests that only 50 percent of African countries have computer studies as part of the curriculum, compared with 85 percent globally.[153]

Digital skills can also be developed when integrated as part of the teaching and learning process. For example, where sufficient hardware is available, students could use spreadsheets to model a simple phenomenon such as climate data or to learn basic facts (such as multiplication tables or vocabulary). That would free teachers to focus on designing and facilitating higher-level learning activities.[154] Increasingly, national education policies in Sub-Saharan Africa recognize that digital skills can and must be developed across the curriculum and emphasize the integration of digital teaching tools as a critical element of teachers' pre-service education (see Chapter Three).

Both hardware constraints and teachers' capacity to make use of technology limit the implementation of policies that aim to promote digital skill development for all. For example, the learner to computer ratio is 277:1 in The Gambia, 90:1 in South Africa, 55:1 in Botswana, and 40:1 in Rwanda.[155] In Sierra Leone, a recent study found that only five percent of teachers use digital tools as teaching aids.[156] Consequently, digital divides are often reinforced, for example, with elite private schools in major cities offering students opportunities to learn to develop apps, while rural students are learning about the parts of computers by copying notes off a blackboard.

TABLE 2.2
EXAMPLES OF INTEGRATION OF DIGITAL SKILLS DEVELOPMENT INTO AFRICAN SCHOOL CURRICULUM REFORMS AND PLANS

APPROACH TO DIGITAL SKILLS DEVELOPMENT	EXAMPLES
Introduced in primary curriculum	Cabo Verde, Ghana, Namibia, Zambia
Introduced in lower secondary curriculum (may be elective)	Eswatini, Kenya, Mauritius, Mozambique, Somalia, Uganda, Zimbabwe
Introduced at upper secondary level (may be elective)	The Gambia
Compulsory at all levels	Algeria, Angola
Tool for teaching and learning	Ethiopia, Ghana, Malawi, Mauritius, Rwanda

Source: Sophia M. D'Angelo and Rachel Marcus, "Mapping of the Integration of Work Readiness Skills in African Secondary School Curricula, Secondary Education in Africa Background Note" (Toronto: Mastercard Foundation, September 2019).

Our analysis of education sector strategies shows that bridging digital skills divides is a high priority for many countries, with investments starting with upgrading teacher skills (Chapter Three). That focus on developing teachers' skills is a sound strategy: analysis of data from the Programme for International Student Assessment (PISA) suggests that adding a computer for the teacher in each classroom is six times more effective in terms of student PISA scores than giving a student a computer.[157]

Mobile phones are much more widely available than computers and may provide an alternative route both to integrating technology for learning and to developing digital skills.[158] In South Africa, where mobile learning resources are relatively common, there is evidence that the use of digital materials has led to improvements in student understanding and pedagogy, with use of more varied teaching approaches and increased enthusiasm among teachers.[159] Initiatives promoting the use of mobile phones as teaching and learning tools must, however, take into account persistent gender and income inequalities in access to phones and data for connectivity and ensure that girls and poorer students are not further marginalized.[160]

A growing number of extracurricular and co-curricular clubs and programs aim to help students develop digital skills. Those are often a form of public-private partnership, where social enterprises or NGOs provide after-school clubs that teach programming, robotics, and other digital and STEM skills. Funding for those initiatives often includes both private-sector philanthropy and development aid, with private-sector innovation particularly common in that area. Examples of private-sector-led initiatives include She Codes for Change in Tanzania, Ghana Codes, CodeSpark Nigeria, and the NGO-led African Maths Initiative. Many initiatives focus fully or partially on girls in an attempt to redress gender inequalities in the digital technology sector by sparking interest and building skills in adolescence. As well as offering school clubs, many of those initiatives also run boot camps — intensive, often residential programs ranging from one to several weeks — to build programming skills. Evaluation of the impact of initiatives of that kind is needed to better understand their contribution to digital skills-building.[161]

Digital skills-building initiatives should ensure that participants receive meaningful certification. Many digital skills-building initiatives lack certification that shows skills mastered and equivalence between different qualifications.[162] National qualifications frameworks (discussed in Chapter Four) are one approach to that. Another is ensuring that digital skills are assessed by recognized bodies. See Box 2.3 for an example of a promising approach in Zambia.

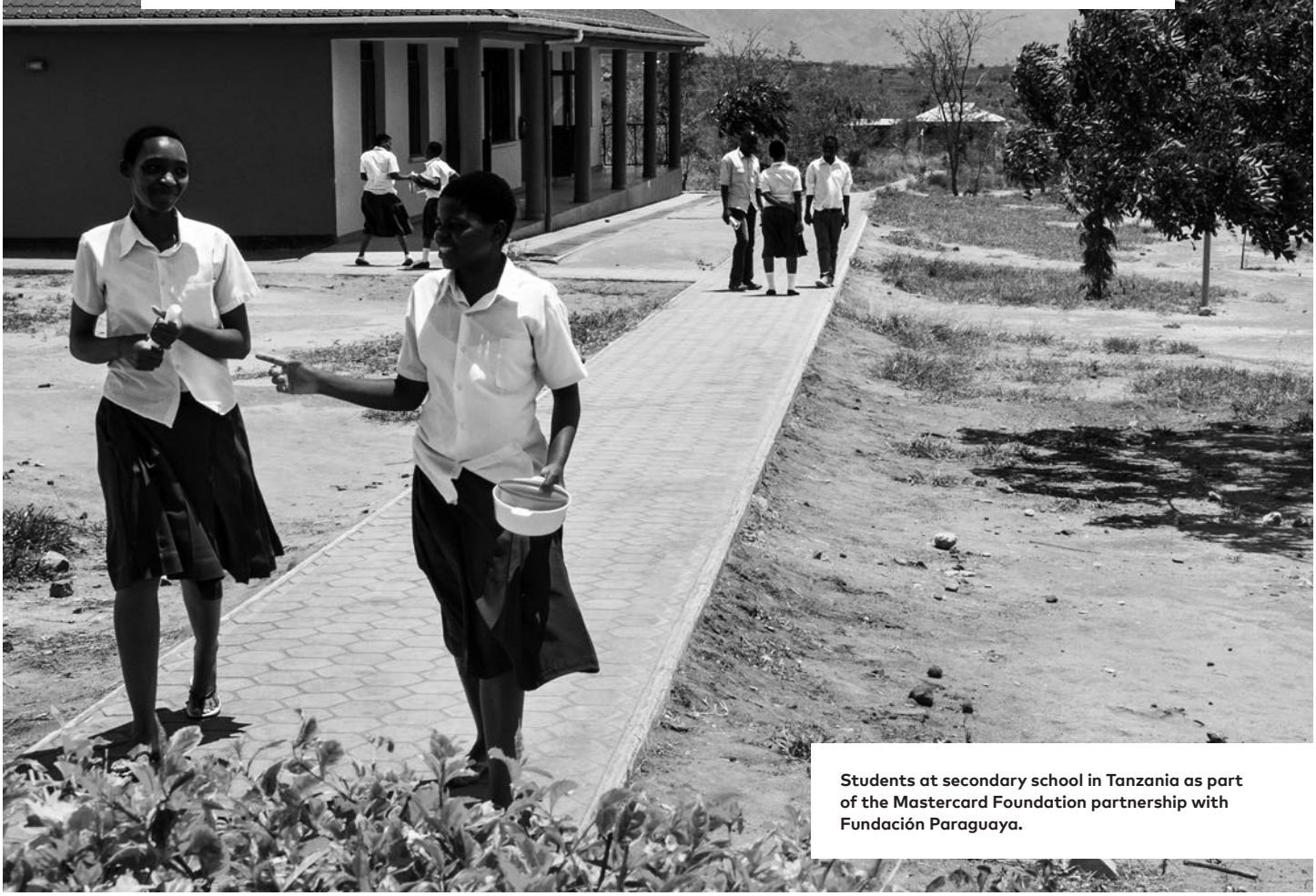
BOX 2.3
PROMISING PRACTICE: FORMALLY RECOGNIZING DIGITAL SKILLS IN ZAMBIA

Zambia is currently in the process of introducing a "trade test" to assess vocational skills, including basic digital skills. The examination tests grade 9 students on their proficiency in the use of spreadsheets, word processing, database management, and presentation tools. Students passing the test will receive a separate practical qualification from the Technical Education, Vocational and Entrepreneurship Training Authority (TEVETA) in addition to the academic certificate from the Examinations Council of Zambia.[163]

2.2.4 INCREASING STUDY OF STEM SUBJECTS

In most Sub-Saharan African countries, relatively few students (less than 20 percent on average) are enrolled in advanced science, mathematics, and engineering courses.[164] There are also significant gender disparities: In 2017, the probability of female students graduating with a bachelor's, master's or doctoral degree in science-related fields was 18 percent, eight percent, and two percent, respectively, compared with 37 percent, 18 percent, and six percent for male students.[165]

Many African education strategies give high priority to increasing the numbers of students gaining qualifications in STEM at the secondary and tertiary levels. Among the strategies being tried are: setting targets for recruitment of upper secondary and tertiary students into scientific courses (Ghana and Kenya have both set a goal of 60 percent of tertiary students studying STEM subjects);[166] making continued scientific study compulsory at the upper secondary level (though in Ghana, that is being reviewed); incentivizing STEM teachers, given that many could earn more in the private sector; and revising curricula to ensure they apply scientific knowledge to real-life issues, drawing on indigenous concepts in some cases. Examples include the integrated science curriculum in Zambia, the life science curriculum in Namibia, and the iSPACES initiative in Tanzania[167] (see Box 2.4).



Students at secondary school in Tanzania as part of the Mastercard Foundation partnership with Fundación Paraguaya.

BOX 2.4
PROMISING PRACTICE: RELEVANT, INTEGRATED SCIENCE CURRICULA IN ZAMBIA, TANZANIA, AND NAMIBIA

Zambia: Integrated Science has been built into both vocational and academic pathways in lower secondary education. As a compulsory subject, the Integrated Science syllabus aims to "provide young learners an opportunity to do hands-on, minds-on and hearts-on activities through manipulation of objects and models, interaction with nature through observation of living and non-living things in their environment as is required in the field of science."[168] The course covers the human body, health, the environment, plants and animals, and materials and energy over the basic education cycle. The Examinations Council of Zambia has developed examinations testing practical scientific skills, though most assessment remains focused on recall of scientific knowledge.[169]

Tanzania: In Tanzania, the Innovation, Science, Practicals, Application, Conceptualization, Entrepreneurship, and Systems (iSPACES) curriculum draws on core principles of western and indigenous science systems, and integrates key entrepreneurship skills. iSPACES pedagogy focuses on the construction, deconstruction, and reconstruction of knowledge through methods that promote exploration and innovation. An evaluation suggests that it has been successful in helping develop workable solutions to overcome everyday problems associated with poverty, famine, and disease. That evaluation also found that contributions of all stakeholders (e.g., industry, parents, professional development experts) are needed to maximize the focus on applying science to contemporary challenges.[170]

Namibia: Namibia's lower secondary life science curriculum combines biology, with an emphasis on human physiology; agriculture, with an emphasis on animal husbandry; and environmental education. It aims to make natural sciences more accessible to learners and opens up curriculum space for exploring the interconnections between natural systems and human systems.[171]

Strong teaching is the most effective way to raise the proportion of girls studying science and reduce gender inequalities in learning outcomes. Where the quality of teaching improves, rates of girls opting to study scientific subjects at senior secondary or tertiary levels tend to increase, and gendered disparities in outcomes narrow.[172] Gendered barriers to studying STEM vary substantially by context and by field of science and technology. They are more significant in computing and engineering, for example, than agriculture or biological sciences. Where they are significant, exposure to women working in STEM fields can help break down stereotypes.[173] Science fairs and competitions to raise interest and encourage young people to develop and apply scientific skills are increasingly common, but their long-term impact has not been evaluated, and provision is patchy and rarely accessible to rural students.[174] Research from the U.S. comparing the relative impact of different factors (family support, extracurricular participation, etc.) found that teacher quality had the greatest influence on girls' interest and confidence in STEM subjects.[175]

Strengthening capacities in STEM will require increased opportunities for science experimentation in secondary schools. However, school science labs are often prohibitively expensive to install and maintain — they often cost four to eight times as much as a standard classroom because of the equipment as well as the additional electricity, water, and gas supply required. Alternatives include using multipurpose classrooms, particularly at the lower secondary level (an approach used in Côte d'Ivoire, Ghana, Togo, and Zambia)[176] and low-cost science kits. In Zimbabwe, for example, the Ministry of Education distributed the Zim-Sci kit to all secondary schools in 2014. The kit costs about US$1,000 and contains enough materials for students to conduct an experiment in pairs every week for four years.[177] In Togo and Ghana, private companies have developed low-cost science kits and have worked with schools and the Ministry of Education to provide training on how to use them and demonstrations to engage students' interest.[178] Where digital technology is reliably available, some scientific processes can be taught using videos and computer simulations — a study with disadvantaged grade 10 science students in South Africa found that it was an effective way of enhancing their understanding of electricity.[179]

2.2.5 INTEGRATING TECHNICAL AND VOCATIONAL SKILLS

Reforms in recent years have led to growing emphasis on offering technical and vocational skills at the secondary and post-secondary level. Secondary-level technical and vocational education in African schools takes place through three main routes: integration of compulsory or elective technical and vocational subjects[180] into the general secondary curriculum at the lower and/or upper secondary level; technical and vocational pathways within general secondary education; and separate technical and vocational education and training (TVET) institutions, usually at the upper secondary level. Around half the countries examined in background research for this report have separate TVET tracks — either within general secondary schools, as in Zambia, or in separate secondary-level TVET institutions, as in Senegal (see Table 2.3). Generally, it is difficult for students to transition between general and vocational tracks,[181] or from secondary-level TVET to post-secondary general education (see Chapter Four).[182]

Despite many governments' desire to expand it, formal TVET constitutes only a small proportion of secondary education in Sub-Saharan Africa — around seven percent of enrolment.[183] Even in Senegal, which aims to boost enrolment to 30 percent of secondary students and has invested substantially in the expansion of TVET at all levels (see case study in Chapter Five), currently only 10 percent of upper secondary students are enrolled in TVET institutions.[184] Rwanda is increasing the number of TVET schools and has recently set a target of 60 percent of secondary-level students to be enrolled in TVET, with 13 percent of secondary-level students enrolled in that form of education as of 2018.[185]

Maxwell Kayesi teaches during science class in Nairobi, Kenya, as part of the Mastercard Foundation Partnership with Global E-Schools and Communities Initiative to improve student learning in science, math, and English.

TABLE 2.3
VOCATIONAL PROVISION AT THE SECONDARY LEVEL IN 22 AFRICAN COUNTRIES

	VOCATIONAL SUBJECTS IN GENERAL EDUCATION				SPECIALIZED TVET PROVISION			
	LOWER SECONDARY		UPPER SECONDARY		LOWER SECONDARY		UPPER SECONDARY	
COUNTRIES	CORE SUBJECT	OPTIONAL	CORE SUBJECT	OPTIONAL	TVET TRACK IN SCHOOL	TVET IN SEPARATE INSTITUTION	TVET TRACK IN SCHOOL	TVET IN SEPARATE INSTITUTION
Angola	●					●		●
Botswana	●	●	●	●				●
Cabo Verde				●			●	●
Ethiopia	●							●
The Gambia	●		●				●	●
Ghana							●	●
Kenya	●		●	●			●	●
Lesotho	●		●		●		●	
Liberia						●		●
Madagascar						●		●
Mauritius	●		●			●	●	●
Mozambique	●		●			●		●
Namibia	●			●	●		●	●
Nigeria	●		●			●		●
Rwanda		●		●				●
Senegal								●
Seychelles	●		●				●	
South Africa								●
Eswatini		●		●		●	●	●
Uganda		●		●		●		●
Zambia	●			●	●		●	
Zimbabwe	●			●				●

Source: Sophia M. D'Angelo and Rachel Marcus, "Mapping of the Integration of Work Readiness Skills in African Secondary School Curricula, Secondary Education in Africa Background Note" (Toronto: Mastercard Foundation, September 2019).

Agriculture forms part of the secondary curriculum in only approximately half the 27 countries whose education strategies we reviewed. In seven countries, agriculture is a core subject (mostly at the lower secondary level, occasionally throughout lower and upper secondary), and in eight, it is one among several vocational options.[186] Given the current and continuing projected significance of agriculture to African economies, that relative lack of attention indicates an area of technical skills development that could usefully be boosted to be more relevant to work and livelihood opportunities. For example, Nigeria's vocational curriculum includes agriculture-related subjects such as animal husbandry and fish farming, while agriculture forms part of the cluster of subjects in the senior secondary science stream.[187]

BOX 2.5

INTEGRATING TECHNICAL AND VOCATIONAL SKILLS INTO GENERAL SECONDARY SCHOOL CURRICULA IS A GROWING TREND

Namibia:[188] In Namibia, all students are required to choose two pre-vocational subjects in grades 8–10 (equivalent to lower secondary school). Those include agriculture, accounting, computer science, design and technology, technical drawing, fashion and fabrics, and home economics. In schools with pre-vocational streams, technical subjects (organized into different groups) include bricklaying, electricity and electronics, metalworking, and plumbing. Four 40-minute lessons are allocated per week, and students are examined in those subjects alongside academic subjects. Passing those subjects counts for credits within the national qualifications framework.

Nigeria: In 2011, Nigeria introduced 34 trade subjects as part of the senior secondary education curriculum, intended to help young people's transition to work in the context of high youth unemployment. Those subjects include various kinds of mechanics and repair, plumbing, carpentry, joinery, animal husbandry, fisheries, catering, data processing and office skills, bookkeeping, photography, tourism, and marketing.[189] Within the new curriculum, students can specialize in four subject clusters: science and mathematics, business studies, humanities, and technology. Whichever subject cluster a student chooses, all students are required to take one of the trade subjects. The choice of trade subjects reflects the availability of teachers and materials, with implementation varying between states, in part dependent on the level of resources available and the strength of partnerships that local education departments can develop with the private sector. Within some subjects — carpentry, printing, and decoration — there are modules on 21st-century skills, including teamwork, organization and planning, and communication.[190] Arguably, such modules should be included in all courses.

South Africa: In 2018, South Africa introduced a major reform to the secondary education curriculum that aims to allow students to pursue their education via distinct tracks: the conventional academic pathway or a pathway that would be oriented towards technical occupations. The technical occupations pathway begins with curriculum offerings starting at the end of primary and continuing through lower and upper secondary. Specifically, the Department of Basic Education plans to dramatically increase the number of institutions (to around 1,000 schools), and students in those schools can choose to take technical subjects at the senior secondary level in civil, electrical, and mechanical technology, engineering, graphic design, and technical mathematics and sciences. To strengthen the technical vocational pathway, the Department has changed its eligibility rules so that students who take technical vocational subjects would not be disadvantaged in their application for university.[191]

TVET should also incorporate the core skills necessary to prepare youth for work, including foundational, 21st-century, digital, STEM, entrepreneurship, and work-readiness skills, to help youth become adaptable lifelong learners.[192] It is increasingly recognized that TVET should not just impart technical skills: it must give youth skills that are needed across sectors and that will be particularly valued given trends of digitalization and automation. UNESCO recommends that initial (secondary-level) TVET incorporate "a sufficient range of knowledge and skills to support lifelong learning," including digital and transferable (i.e., 21st-century) skills.[193] Efforts to incorporate 21st-century and digital skills in TVET curricula are relatively recent. Examples include Educate! in Uganda, APTE in Senegal,[194] and the Akazi Kanoze program in Rwanda, which the Rwandan government has adapted and scaled up throughout the country's secondary schools.

Yet, there is continuing debate about the value and cost-effectiveness of school-based pre-vocational and vocational education.[195] Many vocational and most technical courses are much more resource-intensive than academic subjects (an estimate from Botswana suggests around four times more costly per subject) and can only be delivered effectively if they are adequately financed.[196] Chronic underfunding means that tools, equipment, and teachers' knowledge and skills often lag behind developments within workplaces.[197] As discussed in the Senegal case study in Chapter Five, a recent survey found that half of TVET equipment was not functional and that almost all TVET institutions lacked operational and maintenance funds.

The cost intensity of quality TVET provision means that developing vocational streams within general secondary education could undermine quality by diverting substantial resources away from core subjects. Some observers thus suggest that a more cost-effective path to developing work-readiness skills is to develop critical thinking and other 21st-century and entrepreneurship skills through the standard curriculum in subjects such as mathematics and social studies.[198] There is evidence that employers often value high grades in academic subjects as a signal that students can work hard and learn new things, over and above the relatively basic vocational and technical skills they can achieve in secondary education.[199] Indeed, experience in East Asian countries that have developed rapidly in recent decades, such as South Korea, suggests that higher-level technical skills can most effectively be developed at the post-secondary and tertiary levels based on strong foundational skills developed in primary and secondary education.[200]

On the other hand, there is also evidence that vocational skills learned in school can provide a stepping stone to a more advanced training or apprenticeship, or directly into the workplace. A study comparing TVET and general secondary graduates in Botswana, Kenya, and Uganda found that TVET graduates were more likely to start their own businesses after a period as an apprentice or in employment honing their skills and professional self-confidence.[201] Where school-based TVET can be adequately financed, the model of general secondary education with strong foundational, 21st-century, entrepreneurship, and work-readiness skills training, as well as some vocational subjects, deserves greater investigation as a possible means of increasing young people's skills and workplace opportunities, particularly at upper secondary. At the lower secondary level, emphasis should be on building foundational skills, with some technical and vocational courses.

2.2.6 BUILDING ENTREPRENEURSHIP SKILLS

Deeper and broader entrepreneurship skills will be of increasing importance to future livelihoods. As Chapter One showed, the vast majority of young people in Africa can continue to expect to make their livelihoods in the informal sector for the foreseeable future. In both the informal and formal sectors, in the public, private, and not-for-profit sectors, entrepreneurship skills are expected to play an increasingly important role in generating productive livelihoods.[202] Furthermore, effective entrepreneurship will increasingly require a wider range of skills at a higher level: The foundational, 21st-century, and digital skills discussed earlier in this chapter should be integrated with an up-to-date view on financial and business management skills and understanding of the business environment.[203]

Improvements are needed to the quality of entrepreneurship education. Although many African school curricula, particularly at the upper secondary level, offer business, commerce, or entrepreneurship classes, often as part of technical or vocational tracks, there is some evidence that these subjects are often poorly taught and provide a limited effective foundation in entrepreneurship. For example, a study of entrepreneurship education programs at secondary and tertiary education institutions in Botswana, Kenya, and Uganda found that fewer entrepreneurship program graduates than TVET graduates were able to start their own business immediately after completion, and had to undertake a period of apprenticeship or wage employment to gain practical experience and build professional self-confidence before setting out to start a new business.[204] Often the content is too theoretical and does not engage students in problem-solving and the practicalities of developing and running a business.[205] A World Bank study of skills development in Sub-Saharan Africa concludes that

"quality entrepreneurship education needs more space in the region's education curriculum. This will require a well-planned, structured, and systematic change of existing school curricula to groom students to become successful job-creating entrepreneurs."[206]

... the vast majority of young people in Africa can continue to expect to make their livelihoods in the informal sector for the foreseeable future.

There are several promising routes to boosting effective development of entrepreneurship skills, with an emphasis on experiential learning. They include:

- Increasing curricular time devoted to entrepreneurship — as in Rwanda, where entrepreneurship is a compulsory subject in both lower and upper secondary school.
- Integrating entrepreneurial projects into core subjects, such as mathematics, language and literacy, science, and social studies. That can support the development of skills such as entrepreneurial mindsets, problem-solving, market research, marketing etc., as well as helping engage and strengthen learning in foundational skills.
- Entrepreneurship clubs that enable students with a particular interest to further develop entrepreneurial skills through projects.
- Specialized entrepreneurship courses, such as those run by Educate! and Akazi Kanoze, which are integrated into general and technical upper secondary education (see Box 2.6).

Evaluations of the impact of these approaches — beyond the specialized entrepreneurship courses — are limited. An impact evaluation of NGO Educate! found significant improvements in business ownership, overall income, community project ownership, savings behaviour, and self-efficacy in practical and 21st-century skills[207] (see Box 2.6). More evidence of the relative impact of these approaches is needed to support young people's development of entrepreneurship skills most effectively.

2.2.7 STRENGTHENING WORK-READINESS SKILLS

Young people entering the labour market often lack specific skills to enable them to find work that improves their livelihoods. For young people seeking employment, particularly in the formal sector, those skills include understanding careers and opportunities, how to navigate the job market, their duties and rights, the types of employment they are qualified for, and norms of professional behaviour in the workplace. They also include skills in finding work — through networking, accessing information about vacancies, preparing CVs, cover letters, and emails, replying to advertisements, and, where relevant, strengthening interview techniques. Employers interviewed as part of background work for this report also stressed the importance of digital and 21st-century skills, particularly communication skills, trustworthiness, motivation, perseverance, and fluency in an international or business language. Other recent research from Kenya highlighted discipline, integrity, communication, teamwork, and leadership as the top 21st-century skills valued by employers.[208] Those skills are important both to find work but also to perform well and progress. While some of these skills are specific to seeking employment (e.g., preparing a CV), most are also important for effective entrepreneurship.

Many work-readiness programs target out-of-school young people and integrate work-readiness skills into vocational or entrepreneurship training programs (see Chapter Four). There is a case to be made for also including those skills in lower secondary school, given the relatively small numbers of young people progressing into upper secondary education. In order not to overload curricula, work-readiness skills could be integrated into entrepreneurship or life skills courses, or taught through optional extracurricular programs or specific "off-timetable" days.[209] Teachers would need to be trained to teach such skills to make the programs effective.

Young people face a number of barriers to finding both work and entrepreneurial opportunities that go beyond lacking relevant skills. In addition to the limited availability of jobs, financial constraints limit young people's ability both to travel to seek work, and to start businesses. Skills training programs that ignore those constraints are likely to have limited effectiveness in enhancing youth employment since they address only one of the interconnected barriers to work.

In order not to overload curricula, work-readiness skills could be integrated into entrepreneurship or life skills courses.

Box 2.6 highlights two examples of partnerships between NGOs and government schools to strengthen entrepreneurship and work-readiness skills, as well as a broader set of 21st-century skills. Those skill sets are linked, and each strengthens the other. In both cases, the curricula cover generic work-readiness skills that are useful both for employees and entrepreneurs, and specific skills related to running a business. Both include innovations to ensure courses are practical and relevant, such as partnerships with businesses to provide work placement opportunities (Akazi Kanoze) and in-school business clubs to develop business ideas and implement projects (Educate!). Both have worked with curriculum development and teacher training institutions to build teachers' capacity to teach those skills effectively.

BOX 2.6

PROMISING PRACTICE: WORK-READINESS AND ENTREPRENEURSHIP SKILLS DEVELOPMENT IN KENYA, RWANDA, AND UGANDA

The Akazi Kanoze program has worked with the Rwanda Education Board (for general secondary schools) and the Workforce Development Authority (for TVET schools) to integrate work-readiness skills and work-based learning into the national curriculum. Key modules include:

- **Personal development:** identifying values, attributes, and skills; goal setting; and planning.
- **Interpersonal communication:** speaking and listening; workplace communication; and teamwork.
- **Work habits and conduct:** job seeking and interviewing; and workplace behaviours and attitudes.
- **Leadership:** leadership characteristics; motivating others; team building; and problem-solving.
- **Safety and health at work:** health and safety laws; healthy lifestyles; and stress management.
- **Worker and employer rights and responsibilities:** Rwandan labour code; and worker rights and benefits.
- **Financial fitness:** managing money; saving; budgeting; financial institutions; and financial decision-making.
- **Introduction to entrepreneurship:** risk taking; types of businesses; and work-readiness.

Internal program evaluations undertaken in 2014 and 2016 found statistically significant positive gains in work-readiness skills such as knowing how to apply for a job, understanding business plan development, and feeling comfortable with marketing and attracting customers. The 2016 evaluation found that program graduates were eight percent more likely to be employed after graduating secondary school than comparable young people; for young women, that figure rose to 12 percent. While both male and female participants showed increases in "soft skills" and work-readiness skills, the gains were greater for young women. The 2014 evaluation also found a particularly positive impact on young people in rural areas.[210]

Educate! in Kenya, Rwanda, and Uganda

In East Africa (Kenya, Uganda, and Rwanda), Educate! works with governments to support the implementation of entrepreneurship and employability curricula. In Uganda, it has worked with the National Curriculum Development Centre to support teacher training in entrepreneurship skills and to revise assessments so that they examine relevant work-oriented skills. It has also supported the development of business clubs in schools. In Kenya, Educate! has a similar partnership with the Kenya Institute of Curriculum Development to train teachers, and in Rwanda, it has worked with the government to integrate skills labs and business clubs into the upper secondary school entrepreneurship curriculum for all students. Its teacher training program in Rwanda includes visits where teachers can exchange experiences and learn about innovations in the field. The program aims to build a collaborative environment and a community of practice around skills-based education. In all countries, there is a strong emphasis on promoting gender equality and helping address specific barriers faced by young women entrepreneurs.

An external evaluation involving a cluster randomized trial found statistically significant improvements in five out of its 12 outcome indicators in Uganda (business ownership, overall income, community project ownership, savings behaviour, and self-efficacy in practical and 21st-century skills). The evaluation also found a significant positive impact on business income and creativity among female students. A subsequent randomized trial found that four years after graduating from Educate!, participants had lasting gains in 21st-century skills and were more likely to have completed secondary education and enrolled in tertiary education, thus closing the gender gap between male and female students.[211] While control students had similar gains in business knowledge, management skills, and negotiation skills, Educate! students outperformed control students in tasks that required a mixture of "hard" and "soft" skills.[212]

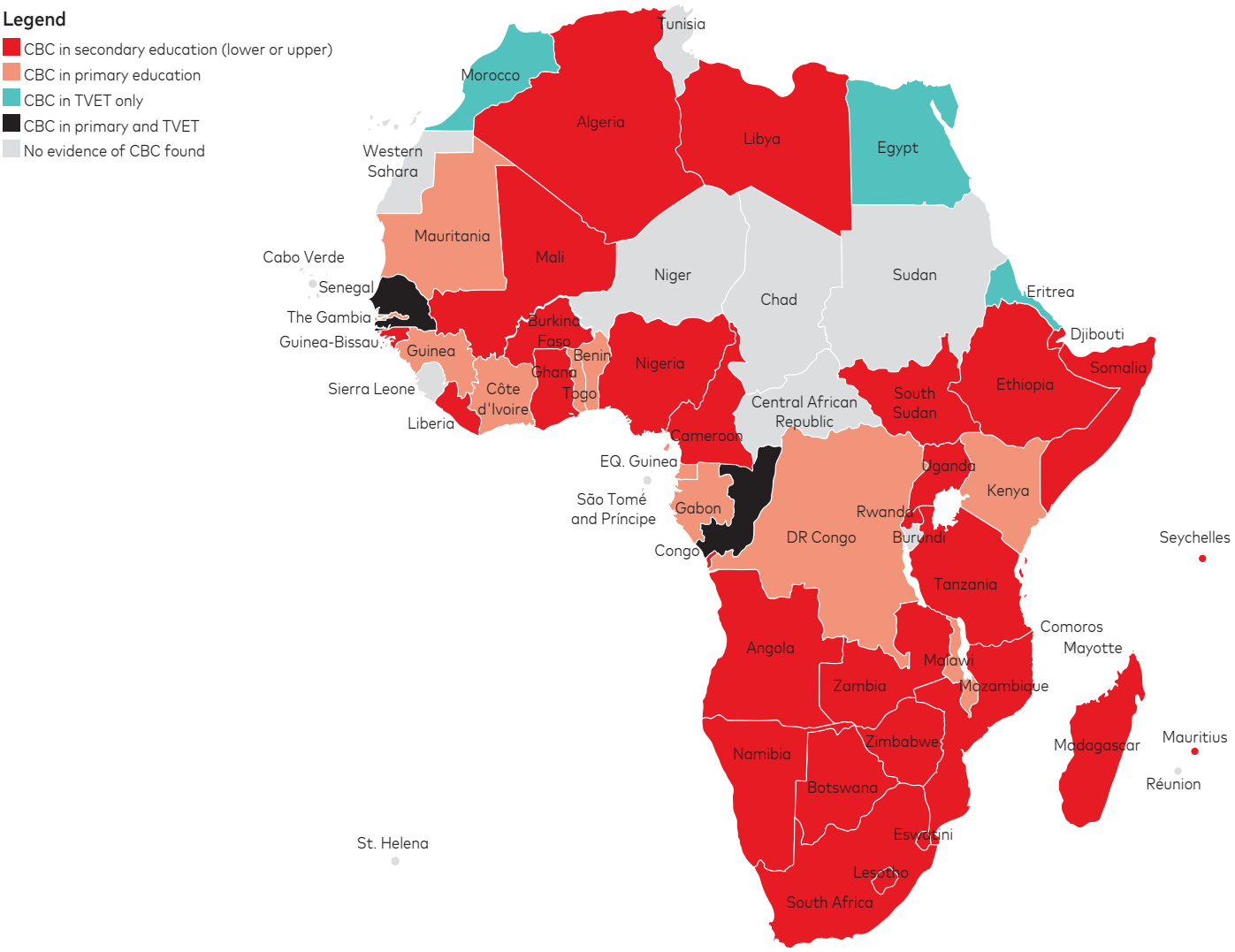
Mastercard Foundation Scholars play basketball at a Secondary Scholars Convening in Rwanda.

2.3 COMPETENCY-BASED CURRICULA

Competency-based curricula emphasize the outcomes of a learning process (i.e., knowledge, skills, and attitudes to be applied by learners) rather than mainly focusing on the subject content that students are expected to learn.[213] They require teachers to encourage students to think critically, to carry out research, to solve problems, to be creative and innovative, and to work together.[214] As discussed in Chapter Three, that is often a major shift in pedagogical approach, and one which teachers who have learned mainly by memorization need support to implement.

Over the past two decades, the majority of school systems in Africa have introduced or plan to introduce competency-based curricula. They have often been implemented gradually, starting in the early grades, as in Kenya, or confined to particular parts of the education system, as in Egypt and Morocco (TVET). Figure 2.2 shows countries that have adopted, or where our research found plans to adopt, competency-based curricula. Unsurprisingly, there is the least amount of evidence of competency-focused curriculum reform in countries affected by conflict, where maintaining or re-establishing provision generally have been more pressing priorities.

FIGURE 2.2
PREVALENCE OF COMPETENCY-BASED CURRICULUM (CBC) REFORMS BY LEVEL OF EDUCATION



Competency-based approaches are often seen as emphasizing skills over knowledge, but, when effective, they develop both. As Rwanda's curriculum framework explains: "[H]igh levels of knowledge and understanding are crucial for a successful knowledge-based economy. It is through the focus on competencies and higher order thinking skills in a competence-based curriculum that learners' skills and abilities are developed and, as a consequence, their knowledge and understanding are deepened."[216] Box 2.7 outlines how Rwanda's curriculum translates those principles into practice.

Source: Sophia M. D'Angelo, Rachel Marcus, and Paola Pereznieto, "Mapping of National Education Sector Policies and Strategies, and Studies of Curriculum Implementation in Africa, Secondary Education in Africa Background Note" (Toronto: Mastercard Foundation, September 2019).[215]

Note: The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance.

BOX 2.7
PROMISING PRACTICE: RWANDA'S COMPETENCE-BASED CURRICULUM[217]

Since the early 2000s, when Rwanda's Curriculum Policy adopted learner-centred approaches, education policy has strongly emphasized transforming curricula to prepare young people for the workforce as well as further education. That emphasis on skills for work is reflected in the Economic Development and Poverty Reduction Strategy 2013–18 (EDPRS2), which states that:

- In primary and pre-primary education, basic skills of literacy, numeracy, language, and social skills must provide a solid foundation.
- Graduates from secondary education must have a range of transferable skills, including teamwork, problem-solving, interpersonal communication, language skills, including basic mastery of international languages, ICT skills, and financial literacy.
- There should be a strong focus on mathematics, science, English, and an entrepreneurial skill set.[218]

Rwanda has gone further than many countries in integrating a competence-based approach across all levels of education and provides detailed guidance to schools on what should be taught and how to promote the development of both basic and generic competencies. Basic competencies include literacy, numeracy, ICT, science and technology, entrepreneurship, citizenship, and communication in the official languages. Cross-cutting competencies are expected to be developed across all subjects and include critical thinking, creativity and innovation, communication, research and problem-solving, cooperation, interpersonal relations and life skills, and lifelong learning.

The curriculum framework also specifies what is expected of learners at the end of each phase (primary, lower secondary, upper secondary) and for each competency. table 2.4 below highlights expected competencies in digital skills and entrepreneurship, critical thinking, and creativity and innovation. Those are expressed broadly so as to be relevant across various levels of education.

TABLE 2.4
SELECTED COMPETENCE DESCRIPTORS IN RWANDA

COMPETENCE DOMAIN	COMPETENCE DESCRIPTORS
ICT AND DIGITAL SKILLS	• Locate, extract, record, and interpret information from various sources. • Assess, retrieve, and exchange information via internet or cell phones. • Use cell phones and internet for leisure and for money transactions. • Use computer keyboard and mouse to write and store information. • Use information and communications technologies to enhance learning.
ENTREPRENEURSHIP AND BUSINESS DEVELOPMENT	• Apply entrepreneurial attitudes and approaches to challenges and opportunities in school and life. • Understand obligations of parties involved in employment. • Plan and manage micro-projects and small and medium enterprises. • Create employment and keep proper books of accounts. • Take risks in business ventures and other initiatives. • Evaluate resources needed for a business.
CRITICAL THINKING	• Think reflectively, broadly, and logically about challenges encountered in all situations. • Weigh up evidence and make appropriate decisions based on experience and relevant learning. • Think imaginatively and evaluate ideas in a meaningful way before arriving at a conclusion. • Explore and evaluate alternative explanations to those presented by others.
CREATIVITY AND INNOVATION	• Respond creatively to the variety of challenges encountered in life. • Use imagination beyond knowledge provided to generate new ideas to enrich learning and solve challenges. • Take initiative to explore challenges and ideas in order to construct new concepts. • Generate original ideas and apply them in learning situations. • Demonstrate resilience when faced with learning challenges.

Source: REB/MINEDUC, Competence Based Curriculum: Curriculum Framework Pre-Primary to Upper Secondary (Kigali: Rwanda Education Board/Ministry of Education, 2015), p. 29–31.

Although competency-based curricula have been widely adopted on paper, implementing these changes has been challenging. There is limited evidence that these reforms have led to learning or skill gains, but equally limited evidence that they have been ineffective or implicated in declining standards. In most countries currently implementing these reforms, teachers with inadequate training are attempting to implement competency-based curricula in large classes and without sufficient teaching and learning materials. For countries introducing a competency-oriented approach, gradual roll-out grade by grade to allow sufficient time for piloting, teacher training, and production of learning materials may help overcome the challenge of attempting a switch-over in the entire education system at once. Kenya has taken that gradual approach and is likely to have lessons for other countries.

One reason many curriculum reforms, both in Africa and other parts of the world, have failed is because, in an attempt to ensure relevance to the changing world, they have added new topics without cutting back existing content.

Competency-based curricula demand high skill levels from teachers to be able to scaffold individual students' learning and assessment, and to provide opportunities for students to learn through interactive experiences. Teachers are often not equipped to teach in this more demanding manner, however, and that approach is often made considerably harder in overcrowded classrooms with limited physical infrastructure. For example, group work can be a challenge when students are crammed into a classroom with little room to move; interactive approaches that require students to talk can disturb other classes if noise travels easily. Chapter Three discusses how teachers can be supported to make use of learner-centred pedagogies and a competency-based approach.

Avoiding curriculum overload is critical. One reason many curriculum reforms, both in Africa and other parts of the world, have failed is because, in an attempt to ensure relevance to the changing world, they have added new topics without cutting back existing content.[219] That can set impossible burdens for students and teachers, particularly in contexts where foundational skills are weak, and students cannot quickly master substantial additional content.

National high-stakes examinations are often poorly aligned with competency-based curricula and continue to primarily test memorization of knowledge rather than the ability to apply it. As a result, teachers have an incentive to continue teaching in ways that have a better chance of enabling students to pass these examinations. Section 2.4 discusses approaches to better align assessment with a focus on competencies and skills.

An instructor from Forum for African Women Educationalists participates in the Mastercard Foundation Leaders in Teaching program in Rwanda.

2.4
ASSESSMENT TO SUPPORT SKILLS DEVELOPMENT

Effective education systems align curriculum, pedagogy, and assessment so that different elements of the system work towards a common set of educational goals.[220] In much of Africa, curriculum reforms have preceded changes to assessments. Reforming assessments so they provide insights into student learning and enable improvements to teaching practices to support learning across the range of skills will be an important next step.

Students during science class in Nairobi, Kenya, as part of the Mastercard Foundation partnership with Global E-Schools and Communities Initiative to improve student learning in science, math, and English.

BOX 2.8
DIFFERENT FORMS OF ASSESSMENT[221]

Continuous assessment: assessment during an educational program rather than at its end.

Formative assessment: also referred to as "assessment for learning"; intended to measure the level of attainment of specific learning goals to inform teaching strategies.

Summative assessment: also referred to as "assessment of learning"; essentially to determine the level of a student's cumulative attainment of a set of learning objectives at the end of an educational program.

High-stakes examinations that determine students' progress between levels of education or lead to recognized qualifications[222] are common throughout Africa. While some countries (such as Senegal) have eliminated some high-stakes examinations (such as primary and lower secondary exit exams),[223] that is relatively rare, and all 25 African countries covered by a 2014 mapping study had national examinations at the end of either lower or upper secondary education, or, more commonly, both.[224]

Those examinations tend to test factual recall more than application of skills, and as a result, teachers focus on teaching examinable content to the detriment of skill development.[225] Potential solutions to that involve ensuring that examinations test skills as well as recall of knowledge, and giving greater weight to other forms of assessment. Providing guidance to teachers on competency-focused assessment is important. For example, Rwanda's Education Board provides clear guidance for the assessment of competencies at different levels of the primary and secondary curriculum,[226] as does Eswatini's recent curriculum.[227] Both also encourage greater use of formative assessments to check students' learning and adjust teaching accordingly.

Skills such as critical thinking and problem-solving can be integrated into existing assessments relatively easily. Examinations can test challenges such as problem-solving, creative thinking, and applying data analysis skills or using literacy skills to write appropriately in a given context. Given sufficient resources, they can also include practical examinations (involving spoken language, scientific experiments, etc.), as is common in many high-income countries. Assessment of critical thinking and problem-solving skills is currently most advanced, with some online PISA modules testing these skills, and some evidence of their use in Australia[228] and East and Southeast Asian countries.[229] Some examinations — while still knowledge-focused — include work-related content, such as Zambia's Integrated Science exams, which ask questions relating scientific knowledge to agriculture.[230] However, examinations are less suitable for assessing other elements of 21st-century skills, such as collaborative working, persistence, or leadership.

Assessing student progress in 21st-century skills — particularly interpersonal skills — requires an understanding of the intricacies of intercultural communications and culture-specific norms. While there are common elements and building blocks of 21st-century skills across cultures, there are also significant differences, particularly in relation to interpersonal skills, such as effective communication and collaboration. There is thus a strong case for national or regional development of assessment frameworks for 21st-century skills, rather than drawing too extensively on international assessment tools. That is particularly the case where the focus of assessment is to guide learning.[231]

There is a strong case for national or regional development of assessment frameworks for 21st-century skills.

Giving greater weight in final grades to continuous assessments can help reduce pressures to downplay 21st-century skills in favour of memorization of content. Some African countries (e.g., South Africa) have introduced continuous teacher assessment of student performance as a proportion of final grades. However, concerns about the potential for corruption have limited interest in taking up that approach.[232] Assessments for learning (formative assessments undertaken throughout a course or school year) are a key tool for fine-tuning teaching to ensure students are developing key competencies and can help shift emphasis away from knowledge-recall-based examinations. Realistic expectations are important so as not to create unreasonable workloads for teachers or students. Avoiding overload requires schools to plan and coordinate assessments across the curriculum and school year.

Innovations in education technology may help with both assessment for learning and summative assessment of competencies and skills. South Africa's Mathematics Online Curriculum, pioneered by the NGO Greenshoots, provides an interactive environment in which students learn about mathematical concepts and enter their answers to questions designed to check and assess their understanding. It then provides teachers with data on students' progress. Evaluation of experience to date suggests that its use increases learners' confidence and mathematics performance, and teachers' enthusiasm for teaching.[233]

An example of holistic assessment of 21st-century and digital skills and knowledge comes from the International Baccalaureate (IB), which offers an upper secondary school leaving qualification. The IB has adopted e-assessments, which, they argue, are more reflective of the range of skills students need and provide more effective opportunities to demonstrate those skills. As Sue Wilkinson, head of e-assessment at the International Baccalaureate, argues:

"[D]ifferent types of tasks are used within the on-screen examinations to test specific skills, meaning that students' achievement against all subject objectives is thoroughly tested. For example, writing a short essay assesses writing capability, whilst creating an infographic assesses communication and presentation skills. With the use of images, videos, animations and models, and through interactive tools, candidates can create, manipulate and make decisions about how to manage data. On-screen tools can also help students who are not working in their first language, and adaptive technologies can ensure that the examinations are accessible to students with access needs, ensuring that all participants are given the best opportunity possible to demonstrate their knowledge, skills and abilities."[234]

At the policy level, data from national assessments can provide evidence on progress in skill development, but there is limited evidence that the progress is widespread or effective. In addition to data from international assessments, such as TIMMS, PISA, and PISA for Development (PISA-D), in which relatively few African countries have so far participated, national assessment data provides a source of information on learning levels and can be used to identify key challenges and bottlenecks to learning and skills development. Ethiopia, The Gambia, Madagascar, Mauritius, Namibia, Nigeria, Sao Tome and Principe, South Africa, Tanzania, Uganda, and Zambia all conduct secondary-level learning assessments[235] (see Box 2.9 for an example from South Africa). In addition, citizen-led assessments, such as those conducted by UWEZO and ASER, and regional assessments such as PASEC and SACMEQ provide another valuable source of evidence on learning levels (mostly at the primary level). However, the lack of comparable learning data at the secondary level to guide policy makers is an obstacle to systematic improvement. We return to those issues in Chapter Five.

National assessment data can be used to identify key challenges ... to learning and skills development.

BOX 2.9
PROMISING PRACTICE: LEARNING ASSESSMENTS IN WESTERN CAPE PROVINCE, SOUTH AFRICA

In 2012, South Africa introduced Annual National Assessments (ANAs) for students in grades 3, 6, and 9 (later expanded to cover all primary school grades) in mathematics and language skills. Those standardized tests provided item-by-item analysis of data from all learners, potentially providing teachers, schools, and education managers with valuable information about the relative performance of individuals, classes, schools, districts, and provinces. The teachers' unions, however, argued that the tests placed additional burdens on students and teachers for limited gain, and led teachers to focus excessively on test preparation. In 2015, they boycotted the assessments. There were also concerns that "underperforming" schools or teachers would be sanctioned. ANA tests are being replaced by a National Integrated Assessment Framework (NIAF), which will test a sample of learners from grades 3, 6, and 9 every three years.[236]

Similarly, the Western Cape Education Department (WCED) introduced systemic testing of mathematics and language for grades 3, 6, and 9 as a supplement to the ANAs and school-based assessments. Those tests are set, administered, and marked by independent service providers, and each school receives a report during the first term of the new academic year with pass rates and average scores for the previous year, as well as data on individual student performance in particular areas of language and mathematics.

There is potential for professional learning communities to make use of data from these assessments to analyze teaching gaps and to design interventions to address the gaps.[237] In September 2016, the Business Day newspaper reported that "independent research has shown that the interventions informed by the tests have contributed significantly to improvements in results. Those interventions have helped to reduce the gap between high-performing and low-performing schools by about 25 percent."[238]

2.5 RECOMMENDED ACTIONS

Integrate seven key skills relevant to labour market needs into secondary education curricula and pedagogy. In particular, greater emphasis on digital skills, entrepreneurship, and work-readiness skills is needed. Cross-cutting 21st-century skills such as communication, collaboration, and creative problem-solving should be integrated into existing subjects through interactive, learner-centred pedagogical approaches. Foundational skills of literacy, numeracy, and proficiency in the language of instruction are the basis for all other learning and should be strengthened at the primary level. Where still lacking, those skills should be bolstered through remedial support. Specifically:

Strengthen foundational skills (literacy, numeracy, and fluency in language of instruction) by:

- devoting more curriculum time and using stronger pedagogies to support more effective development of these skills at the primary and lower secondary level.
- providing remediation support for students, where needed, via formal classes or extracurricular provision.

Develop 21st-century skills by:

- integrating opportunities to master cross-cutting skills through interactive and group-based learning across the curriculum.
- providing opportunities for experiential learning and leadership development through co-curricular and extracurricular activities.

Develop digital skills by:

- strengthening teachers' capacity to integrate digital technology across the curriculum.
- increasing opportunities for students to use digital technology in timetabled lessons and co-curricular and extracurricular clubs.
- continuing to invest in hardware and training of school staff to maintain hardware and software.

Strengthen STEM knowledge and skills through:

- enhancing the quality of science teaching, ensuring that curricula relate to real-world challenges, and increasing students' opportunities to take part in practical problem-solving activities, e.g., through use of low-cost science kits.
- reducing gender-based barriers through improved-quality teaching, the hiring of more female teachers, and specific girl-oriented clubs and initiatives.

Expand opportunities for developing relevant technical and vocational skills through:

- offering optional or compulsory technical and vocational courses within general secondary education.
- expanding enrolment in TVET institutions.
- aligning technical and vocational courses to labour market needs.
- ensuring TVET includes opportunities to develop skills relevant to work such as foundational, 21st-century, and digital skills.

Promote entrepreneurship and work-readiness skills through:

- timetabled and co-curricular and/or extracurricular entrepreneurship and work -readiness courses and activities with experiential learning and skills-building in the areas of business planning and management, financial literacy, employability, and targeted exposure to the world of work.

Ensure alignment between competency-based curriculum reforms, pedagogy, and assessment systems by:

- reducing the number of high-stakes examinations, integrating more assessment of skills into remaining examinations, and making more extensive use of continuous and formative assessment.
- conducting national assessments of learning to help assess the acquisition of skills and use the analysis to support teachers and/or schools that are falling behind.

A Mastercard Foundation Scholar at a Secondary Scholars Convening in Rwanda.

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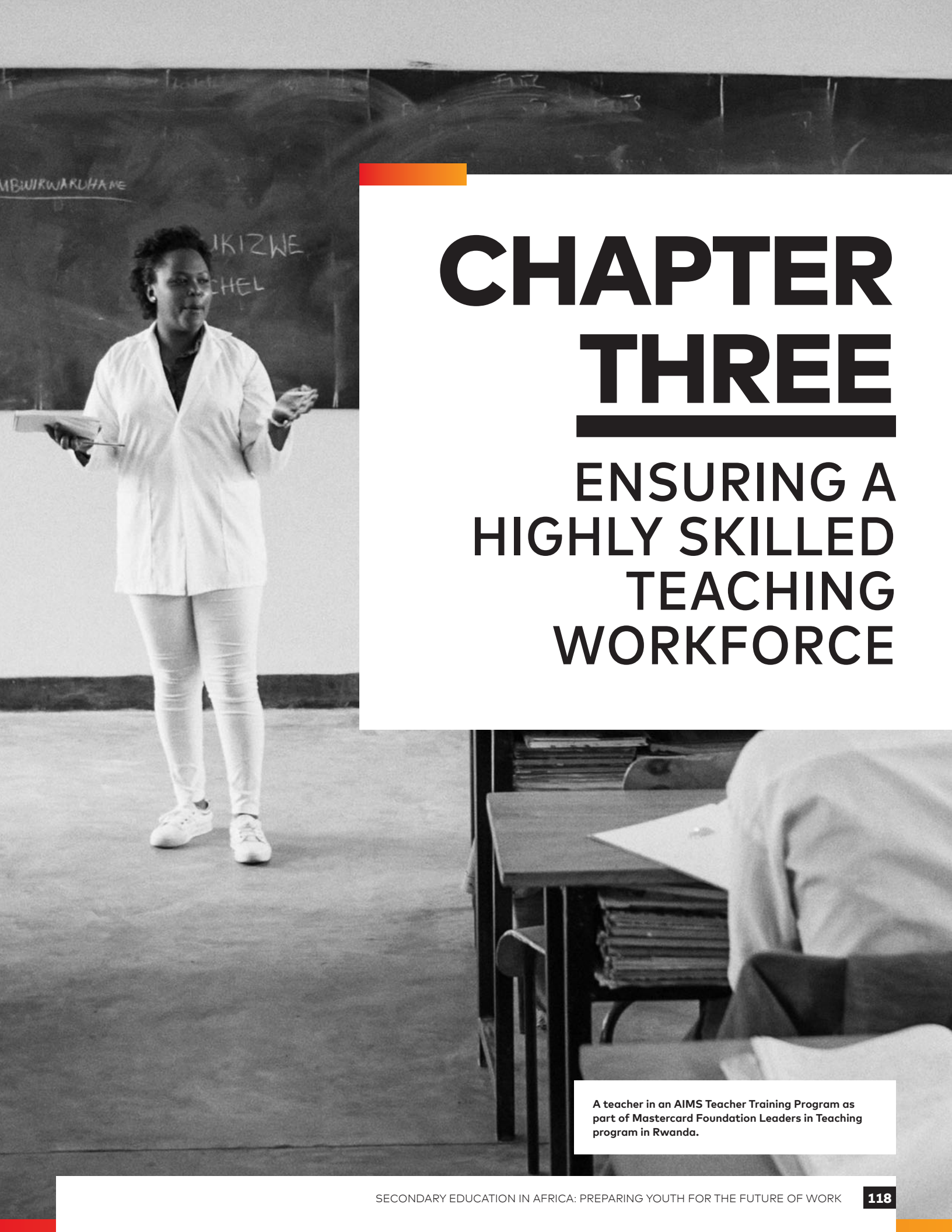
CHAPTER THREE

ENSURING A HIGHLY SKILLED TEACHING WORKFORCE



A teacher in an AIMS Teacher Training Program as part of Mastercard Foundation Leaders in Teaching program in Rwanda.

KEY TAKEAWAYS:

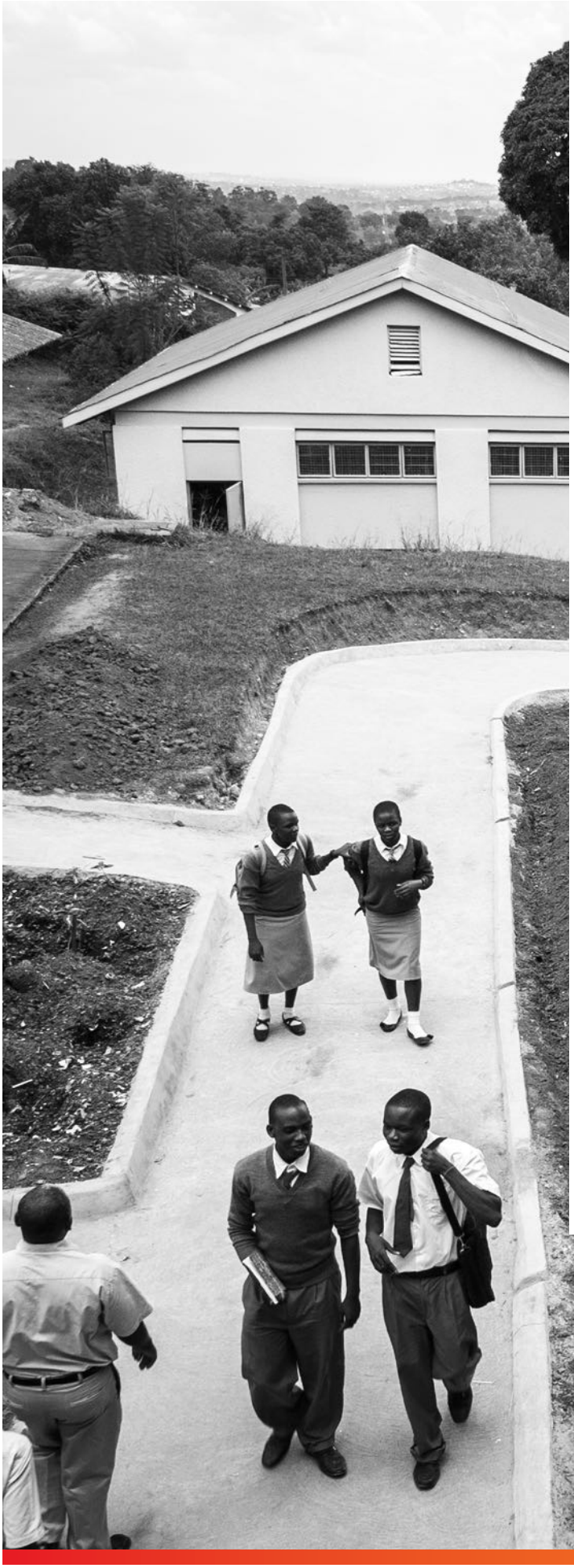
- **Investing in high-quality teachers is a strategic investment** that can kick-start a virtuous cycle of good learning outcomes, benefitting the next generation of teachers and learners and helping to prepare them with the 21st-century skills relevant to the future of work.
- **Sub-Saharan Africa will need more than 10 million additional teachers to meet the demand for quality, relevant secondary education by 2030.** In most countries, women are substantially underrepresented as teachers and in school leadership, and redressing that gender imbalance is vital to reducing barriers to girls' attendance and learning. Many countries face specific shortages of teachers qualified to teach STEM subjects and digital skills, and may need a combination of targeted incentives and in-service upskilling to meet those gaps.
- **Developing high-quality pre-service education is a foundation for more effective teaching and learning.** Programs may need to be extended to ensure teachers have foundational subject knowledge, pedagogical skills, and fluency in the language of instruction.
- **In-service continuing professional development programs are vital for updating teachers' skills to teach new curricula, integrating digital technology, and helping students develop key work-relevant skills.** They are also essential to enable high-performing teachers to develop instructional leadership skills that contribute to improvements in schools' overall learning outcomes.
- **In-service qualification programs for unqualified teachers are also essential to addressing knowledge and skills gaps among teachers in many African countries.** Special attention should be given to upgrading and accrediting the skills of the large number of unqualified teachers across Africa, to ensure better learning outcomes for youth and to provide opportunities for professional pathways for teachers.
- **Both pre- and in-service teacher education need to put stronger emphasis on helping teachers adopt learner-centred approaches and adapt those for contexts of overcrowded classrooms with limited teaching and learning materials.** Learner-centred pedagogies are the single most effective way to help students develop the 21st-century skills that will be critical in their working lives.

A student takes measurements in science class in Uganda as part of the Mastercard Foundation partnership with BRAC.

3.1 THE VIRTUOUS CYCLE: WHY TEACHERS ARE CRITICAL TO YOUNG PEOPLE'S SKILL DEVELOPMENT

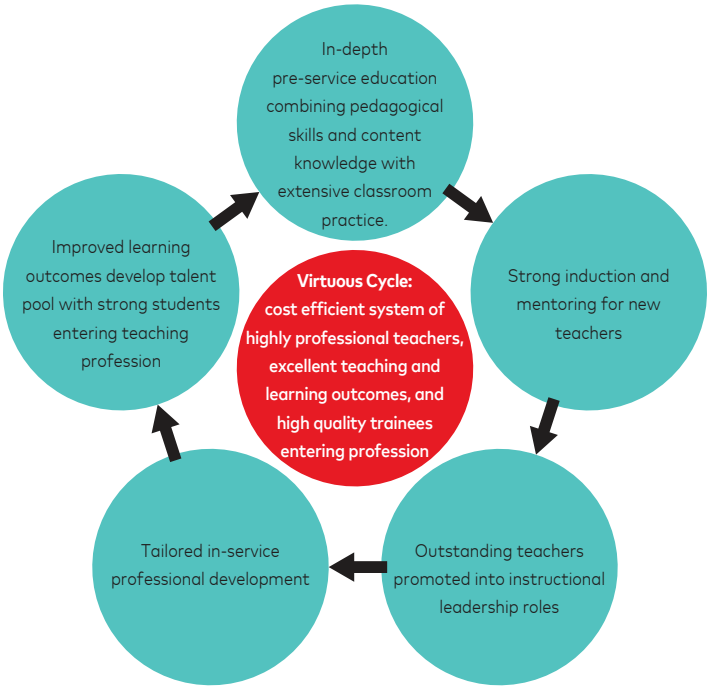
Teacher quality is among the most important factors influencing learning outcomes at the school level. Moving from a low-performing to a high-performing teacher increases student learning outcomes significantly. High-quality teachers can also enhance students' well-being and future economic outcomes. Several years of outstanding teaching may also improve equity by helping disadvantaged students make up previous "learning deficits."[239]

The world's best education systems have succeeded in making teaching a high-status profession, which attracts students with strong academic backgrounds and motivation to teach and to develop their practice to high professional standards. Investment in good-quality pre-service education for teachers, strong support for new teachers, effective school leadership, and effective in-service training and development can lead to a virtuous cycle (illustrated in Figure 3.1). Those investments can help develop a motivated workforce with strong professional ethics and improve learning outcomes, which in turn lead to efficiencies as fewer students repeat grades, and a better-educated cadre of new entrants join the teaching profession. While all elements of the virtuous cycle are essential for strong learning and skill outcomes,[240] in this report we focus on four interventions: attracting better-qualified, motivated students; providing strong pre-service education, with remediation if necessary; providing in-service skills upgrading to all teachers, including qualification programs for unqualified teachers; and strengthening school leadership.



Transforming teacher education and generating a virtuous cycle of highly qualified and effective teachers, good learning outcomes, and strong candidates attracted into the profession can take a generation. It takes time for a critical mass of well-qualified teachers to build up in the system, to improve student learning outcomes, and to move into instructional leadership positions where they can both guide learning and mentor other, newer teachers.[241] However, such a virtuous cycle is well worth the investment, as it can lead to improved learning outcomes as well as efficiency gains.

FIGURE 3.1
STIMULATING A VIRTUOUS CYCLE THROUGH A HIGHLY SKILLED TEACHING FORCE



Source: Based on Nick Taylor, Roger Deacon, and Natasha Robinson, "Secondary Level Teacher Education in Sub-Saharan Africa, Teacher Preparation and Support: Overview Report, Secondary Education in Africa Background Report" (Toronto: Mastercard Foundation, March 2019).

Students at school in Uganda as part of a Mastercard Foundation partnership with STiR Education.

3.2 AFRICA NEEDS A MASSIVE EXPANSION IN THE NUMBER OF QUALIFIED TEACHERS

Sub-Saharan Africa will need 10.8 million additional teachers to meet the demand for quality, relevant secondary education by 2030.[242] In 2014, as part of an analysis of investments needed to achieve the Sustainable Development Goals, the UNESCO Institute of Statistics estimated that to achieve universal secondary education by 2030 in Sub-Saharan Africa, an additional 7.1 million teachers would be needed to fill new positions and 3.7 million to replace teachers who leave the profession.[243] While some countries such as Zambia and Tanzania have accelerated recruitment into teacher training programs,[244] several African countries are not projected to meet demand for lower-secondary-level teachers at current rates of growth.[245] (Similar projections for upper secondary education are not available.) In some of the poorest countries, that forecast demand for teachers is equal to half or more of the total projected graduates of tertiary education.[246]

Sub-Saharan Africa will need 10.8 million additional teachers to meet the demand for quality, relevant secondary education by 2030.

In many African countries, student to teacher ratios are considerably higher than UNESCO's recommendation of 25:1 for the secondary level. The average ratio of students to trained secondary school teachers in Sub-Saharan Africa is 44:1, though that rises much higher in some contexts. For example, the ratio is 76:1 in Central African Republic and 96:1 in Madagascar.[247] Even in countries where averages are lower, severe overcrowding is common in many schools, both in urban areas where populations are large and rising, and in rural communities where secondary schools serve large geographic areas.[248]

In most African countries, female teachers are underrepresented at the secondary level. In 25 countries, women make up less than 30 percent of the secondary teaching workforce and in some countries, the figure is much less. In Liberia, for example, women made up only six percent of secondary teachers in 2017. The only countries where women constitute over half of the secondary teaching workforce were Namibia, Lesotho, and South Africa, where they accounted for between 54 and 58 percent of teachers. A lack of female teachers is frequently identified as a significant deterrent to girls' attendance, particularly in contexts where gender-based violence and discrimination are common; some studies also link a lack of female role models to girls' learning outcomes in general, and in STEM subjects in particular.[249]

Although Africa's education systems have many dedicated teachers, teaching is often not perceived as an attractive career. Many African education systems struggle to attract well-qualified candidates into a profession that has declined in status and relative pay in recent years, and which is perceived to have relatively limited promotion prospects. In some countries, a significant number of trainee teachers did not qualify for their first-choice programs, have relatively low academic qualifications, and have weak motivation to teach.[250] The relatively low entry requirements for teacher education programs means that trainee teachers often need to fill gaps in their own education before they are prepared to teach and often use teaching as a stepping stone to other fields of study.

School systems can attempt to increase the attractiveness of teaching as a career by:

- **Improving teaching conditions so that high-quality candidates are attracted into teaching**, through improving pay and promotion prospects, reducing class sizes, and increasing the availability of teachers' housing. Through those measures, and reform of its teacher training and professional development processes and frameworks, Uganda's National Teacher Policy aims to raise the status of the teaching profession to be comparable with that of medicine and law.[251]
- **Paying for training bursaries**, as in The Gambia and South Africa,[252] **or providing incentive payments for subjects where teachers are in short supply**, such as STEM subjects, as in South Africa's Mathematics and Teacher Intern Programme.[253] As well as increasing the supply of new teachers, that can help enhance motivation and translate into improved teaching.
- **Providing housing and accelerated promotion routes to encourage teachers to serve in rural areas.** That may be effective in particular contexts where rural teaching posts are seen as unattractive, though some research suggests that a more supportive professional and social environment is a more significant factor.[254]
- **Recognizing excellence through prizes**, as with the Varkey Global Teacher prize, which in 2019 was won by a Kenyan science teacher, Peter Tabichi. He had pioneered improvements to science, technology, and math learning in his rural school through both pedagogical leadership and extracurricular activities.[255]

School systems can attempt to increase the quality of candidates entering teaching through:

- **Raising entry standards**, for example, by requiring specialized tertiary education. Some countries have raised or are raising the entry requirements for teachers.[256] However, that approach can reduce the pool of eligible applicants, so it should only be implemented where there are sufficient numbers of suitably qualified potential entrants.[257]
- **Directly assessing candidates' academic knowledge and skills.** In at least 17 countries, candidates are asked to take an entrance exam or are interviewed as part of the selection process.[258]
- **Selecting candidates with an interest in teaching.** For example, in Djibouti, selection of teacher training candidates includes an assessment of their motivation to teach, and in Namibia, of their attitude towards education, personal attributes, maturity, and reasoning and communication skills.[259]

BOX 3.1
PROMISING PRACTICE: TEACHING ASSISTANTS IN RWANDA[260]

As part of its Leaders in Teaching program, the Mastercard Foundation-funded Teaching Assistantships Project is a pilot in Rwanda that places talented female upper secondary school graduates in secondary schools in their home communities during the gap between completion of secondary school and the beginning of their tertiary studies. Teaching assistants work alongside qualified teachers to support teaching and learning, primarily in science and mathematics, for a period of six months. Mentors, hired by local implementing partner Inspire, Educate and Empower (IEE) Rwanda, provide teaching assistants with training prior to deployment to community schools as well as continuing professional development throughout the program. Mentors also work closely with head teachers, directors of studies, and teachers to give teaching assistants the mentorship and support they need for their placements to be successful.

The project directly impacts the motivation and perceptions of students and teachers. Positive impacts of teaching assistants have been noted by most education stakeholders at school, district, and national levels and teaching assistants serve as important role models for students to study STEM subjects, particularly girls. For teaching assistants, the program is an opportunity to give back to their communities and to gain practical experience while waiting to further their education. They note improved self-confidence, particularly in public speaking, improved self-esteem, better collaboration skills, and clearer career ambitions. The program has inspired a passion for teaching, with 26 percent of participants selecting education as their first choice for tertiary education studies.

The Teaching Assistantships Project aligns with the Government of Rwanda's commitment to nurturing a young teaching force, particularly in STEM subjects, as part of its current Education Sector Strategic Plan (ESSP) through to 2025. The program also supports ESSP strategic priorities related to career guidance, enhanced quality of learning outcomes, strengthened STEM, equitable opportunities for children and young people, and skilled teachers to deliver the competence-based curriculum.

To date, 150 teaching assistants, supported by 15 teaching assistant mentors, have been deployed at 73 schools in 15 districts across Rwanda. Efforts are underway to expand the program nationally.

A student participates in a business class in Tanzania as part of a Mastercard Foundation partnership with Fundación Paraguaya.

3.3 TRANSFORMING TEACHER PREPARATION

Improving the quality of teacher education is a critical strategic intervention to boost the quality of teaching and of students' learning and skill development. Countries such as Singapore and the Republic of Korea made those investments at early stages of their development trajectories and their highly educated populations have been a driving force in economic transformation. More recently, investment in teacher training has been an important element of Vietnam's educational progress.[261] Good-quality teacher training has positive effects on the quality of teaching, learning, and increasing the efficiency of the educational process.

Competency-based curricula demand a higher level of skill from teachers than knowledge-focused approaches, as they involve the promotion of critical thinking, requiring a more diverse set of pedagogical methods. The expansion of secondary education also means that teachers are required to teach more diverse groups of students who are entering secondary education with a wider range of competence in foundational and other skills. Moreover, teachers are increasingly being required to master and teach new skills, such as digital skills, as well as to integrate new technology into their teaching practice. All of those factors point to the need for a significant transformation in teacher education to ensure that young people are prepared for the future of work.

Despite its strategic role, little is known about patterns of expenditure on teacher training in Africa. Analysis is hampered by a lack of published or comparable data.[262] Publicly available budget lines often do not separate out teacher training from other expenditures or disaggregate between levels of education.[263] There is no widely accepted benchmark for recommended levels of teacher training expenditure. One estimate suggests that allocating around five percent of education expenditure to teacher training in countries where rates of expansion of secondary enrolment are less than five percent per year would be a viable minimum but would not allow for a substantial increase in teacher quality. For countries with higher rates of secondary education expansion, allocating 10 percent of the total education budget for teacher training is suggested.[264] Background research for this study suggests that considerably less than that is currently being spent.[265] Available evidence thus suggests a case for increasing financial commitments to teacher education to meet the increase in new teachers that will be needed over the SDG period and to upskill existing teachers.

3.3.1 EFFECTIVE PRE-SERVICE TEACHER EDUCATION

A trend in recent years towards shorter pre-service qualification programs may have contributed to the "learning crisis" in Africa.[266] That trend reflects donor policies and funding trends, which, for a period, deprioritized pre-service education.[267] It also reflects the necessity of upskilling unqualified contract teachers, recruited to fill significant gaps during periods of expansion. Teacher education policies now increasingly appreciate the strategic importance of pre-service education.[268]

Ensuring teachers have mastered content through extended pre-service education is one of the most effective ways to improve teacher quality.

Where teacher candidates lack secure understanding of the content they will be required to teach, pre-service programs need to prioritize remedial skill development and, if necessary, extend the period of study. Ensuring teachers have mastered content through extended pre-service education is one of the most effective ways to improve teacher quality. A much-quoted study of Chinese and American teachers' mathematical competence and its effects on student outcomes highlights Chinese teachers' deeper understanding of the subject and concludes that "no amount of general pedagogical knowledge can make up for ignorance of particular mathematical concepts."[269]

Ensuring trainee teachers' fluency in the language of instruction should be given higher priority in pre-service programs. That is a strategic investment that underpins improved student learning, upskilling of young people, and a stronger next generation of new entrants to the teaching profession. Ghana provides an example of a country actively working to strengthen teachers' English language skills through both pre- and in-service teacher education programs (see Box 3.2 on Transforming Teacher Education and Learning (T-TEL) in Ghana).

Pre-service teacher training programs are often overly theoretical, with insufficient supervised practice and mentoring. Practice teaching periods are often short and too few, and trainee teachers often receive limited mentoring.[270] T-TEL in Ghana has sought to change that as part of its wider package of teacher education development activities and by linking 30 percent of trainee teachers' final grades to classroom practice. Ghana's new B.Ed. program has significantly increased classroom practice periods for trainee teachers.[271] In Zimbabwe, trainee teachers doing practicums are supported by a school-based mentor for the duration of their assignment.[272]

BOX 3.2
PROMISING PRACTICE: TRANSFORMING TEACHER EDUCATION AND LEARNING (T-TEL) IN GHANA

Ghana's Transforming Teacher Education and Learning (T-TEL) program has worked with the Ministry of Education, various public-sector education agencies, 40 colleges of education, and five universities to support improved pre-service education for teachers, with an explicit focus on student-centred methods and gender-responsive approaches. The program has focused on increasing faculty's capacity to train teacher candidates in subject content (English, math, and science) and pedagogy, on enhancing mentoring for new teachers in partner schools, and working with college leaders to support change. An evaluation conducted after four years found that T-TEL has had significant impact on student teachers' competencies in English, math, and science, as assessed by Ghana's Pre-Tertiary Teacher Professional Development and Management (PTPDM) framework. Those competencies include:

- having a clear, high-quality lesson plan
- use of strategies to open the lesson, provide clear explanations for new concepts or skills, and assess students' understanding
- use of different teaching and learning materials
- asking pupils a range of questions during the lesson and giving constructive feedback on answers
- use of techniques to address mixed-ability classes
- use of strategies to effectively manage a class, including attention to seating arrangements in the classroom

The evaluation also found a statistically significant increase in the use of gender-sensitive instructional methods among both male and female "beginning teachers."[273]

Pre-service education should be updated to prepare trainees to teach revised school curricula and to develop critical skills in learner-centred pedagogies. There is often a lag between curriculum revision and adoption of new pedagogical policies and practices within teacher training institutions. For example, studies across East and West African teacher training institutions have found that staff rarely model interactive methods, so trainees have little experience of active learning themselves.[274] With many national education sector plans and curricula now mandating learner-centred pedagogies, that is an important missed opportunity. It is particularly important to help new teachers develop strategies for integrating learner-centred and interactive pedagogies into their teaching in real-world classroom contexts of high student-teacher ratios, limited physical space, limited learning materials, and students who are not fluent in the language of instruction.

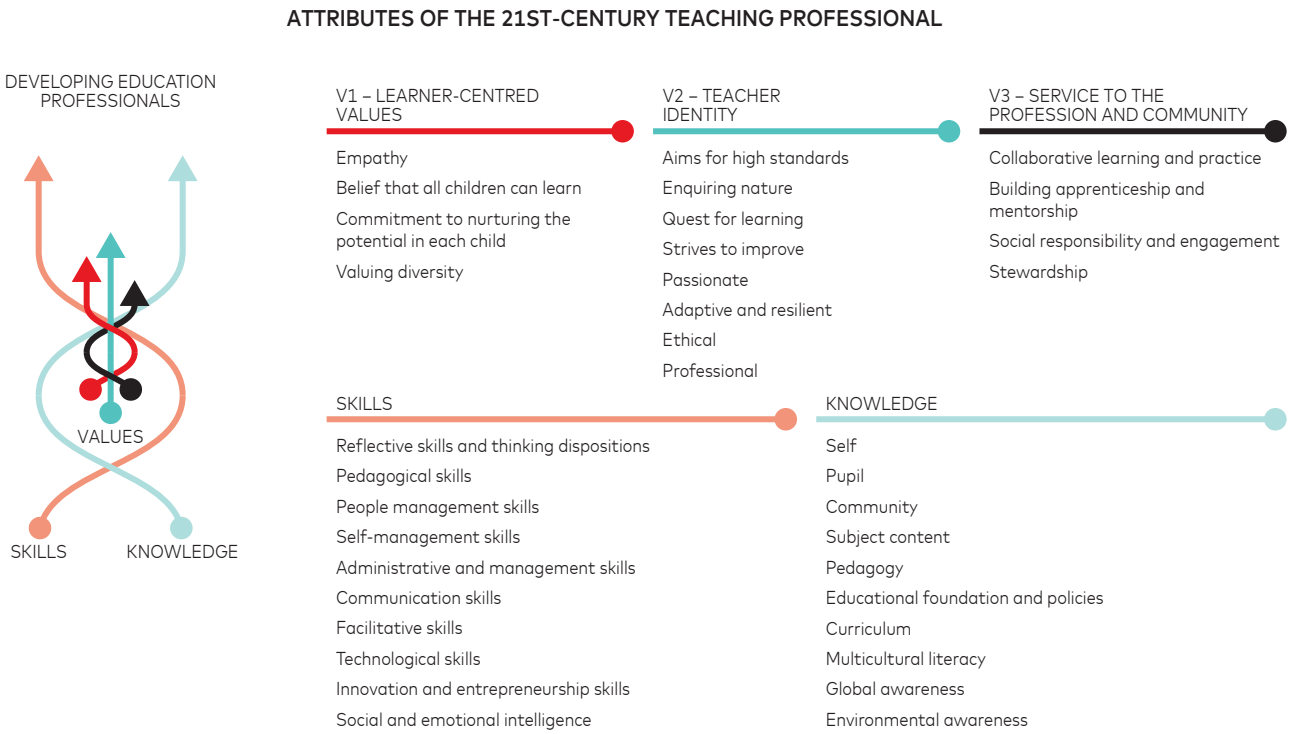
BOX 3.3

STRATEGIES FOR EFFECTIVE PRE-SERVICE TEACHER EDUCATION PROGRAMS

- Prepare new teachers to teach current school curricula, in terms of both content and required pedagogical approaches;
- Build on trainee teachers' existing knowledge, practices, and circumstances, and thus scaffold their learning;
- Ensure new teachers develop a full understanding of the content they will be required to teach and of pedagogical strategies for helping students learn specific content;
- Help trainees gain proficiency in the language of instruction (if they lack it) and/or support them with strategies for multilingual teaching;
- Model interactive methods in their own instruction so that student teachers are exposed to learner-centred pedagogies;
- Provide practice-based learning opportunities for trainees throughout training courses, with mentoring during practice periods;
- Help new teachers develop strategies for the practicalities of teaching in overcrowded classrooms with limited resources or diverse learners, or teaching multiple grades simultaneously; and
- Enable new teachers to master the digital skills and technologies that they will need to use.

Excellent teaching requires commitment to professional ethos and values as well as pedagogical skills and subject knowledge. For example, Singapore's framework for the development of 21st-century teaching professionals emphasizes three sets of values: learner-centred values, teacher identity values (including professionalism, aiming for high standards, and commitment to improvement), and values of service to the profession and the community (Figure 3.2).[275]

FIGURE 3.2
SINGAPORE'S FRAMEWORK FOR DEVELOPMENT OF 21ST-CENTURY TEACHING PROFESSIONALS



Education for new teachers in professional standards and codes of conduct is a way to tackle endemic school violence. In Sub-Saharan Africa, sexual abuse and bullying in schools are recognized as widespread problems. Corporal punishment is also widely practised, despite there often being laws prohibiting it. Pre-service education plays an important role in educating new teachers in positive discipline, professional ethics codes, and sanctions for violating those codes.[276] Much innovation in that area has been led by NGOs, which have played a key role in driving attention to school violence, but attention to the topic is sporadic. To address that, Togo's Ministry of Primary and Secondary Education and Training has developed a harmonized training manual on the protection of children from gender-based violence at school, based on insights from different NGO and government training programs.[277] Analysis of efforts to change norms and behaviour suggests that norms around sexual abuse and harassment have been easier to shift than those around corporal punishment.[278]

Post-training licensing can ensure that teachers demonstrate required competencies before they start teaching. In half of OECD countries, a teacher education qualification is insufficient to obtain a certification to teach. After training, teachers have to pass a competitive exam to be certified and enter the profession. Several African countries are instituting similar measures. For example, in recent years, Rwanda has initiated a teacher licensing system — licences will be valid for a five-year period and renewal will depend on the results of a teacher's annual performance evaluation during that time.[279] Uganda's draft national teacher policy identifies a lack of procedures for ensuring that prospective teachers possess the necessary knowledge, competencies, and personal attributes, and has proposed putting an accreditation mechanism in place to assess those competencies. Discussions within ECOWAS aim to agree on regional prerequisites for the employment of teachers, including teacher qualification frameworks, regulatory bodies, and licensing.[280]

Secondary students at school in Tanzania.

3.3.2 IN-SERVICE EDUCATION TO UPDATE SKILLS

In-service training plays a vital role in helping existing teachers update their skills and knowledge, deliver new curricula, and adopt new pedagogies as part of continuing professional development (CPD). It can also enable teachers to develop specialist skills as part of their career advancement. In some countries, in-service provision is part of a structured post-qualification program to maintain and develop skills. For example, in Burundi, Cameroon, Djibouti, Nigeria, and South Africa, newly qualified teachers build up credits for in-service development that they have undertaken, while in Ethiopia, teachers are required to undertake self-study and residential training sessions over a period of three years.[281] In-service education is commonly used to help teachers develop skills in formative assessment and aspects of inclusive pedagogy, such as gender-sensitive teaching. Structured in-service training provides a key route for teachers to develop skills that help prepare young people for the future of work (see Section 3.4).

On average, 50 percent of secondary school teachers in Sub-Saharan Africa are qualified to national standards.

In countries that have recruited large numbers of unqualified teachers to meet expanding demand for secondary education, upgrading the skills of the existing teacher workforce is an important priority. On average, 50 percent of secondary school teachers in Sub-Saharan Africa are qualified to national standards.[282] Low levels of content knowledge among the teaching workforce in many countries are also a significant barrier to quality learning. According to the World Bank's Service Delivery Indicators, under half the teachers surveyed in seven countries in Sub-Saharan Africa met minimum standards of knowledge in mathematics or language, ranging from 40 percent doing so in Kenya to less than one percent in Madagascar, Mozambique, and Niger.[283]

In-service qualification programs are a means of upskilling unqualified teachers, but that should not be done at the expense of investment in effective pre-service training.[284] Effective programs typically involve a combination of distance and face-to-face study,[285] such as The Gambia's Primary Teachers' Certificate and Higher Teachers' Certificate distance study programs, which bring unqualified teachers to qualified status over the course of three years.[286] Programs such as CAMFED's Learner Guides program in rural Tanzania and Girls' Access to Education (GATE) in Sierra Leone enable local young women to work as classroom assistants and gain qualifications that serve as a stepping stone to teaching careers, while simultaneously serving as role models to girls.[287] In-service qualification programs are a means of up-skilling unqualified teachers, but in-service programs should not be at the expense of investment in effective pre-service training.[288]

Digital technology provides increasing opportunities for teachers' skills development, through both informal self-study and structured programs, undertaken fully or partially through distance learning. Box 3.4 highlights a large-scale example from Egypt.

BOX 3.4
PROMISING PRACTICE: ONLINE COMMUNITY OF PRACTICE AND DIGITAL OPEN EDUCATIONAL RESOURCES (OERs) TO SUPPORT IMPROVED TEACHING

Egypt's Teachers First project is a school-based continuing professional development program that fosters communities of practice around teachers' instructional strategies through mentoring and coaching.[289] It identifies teachers who demonstrate effectiveness and professionalism in the classroom and leverages their skills and knowledge in subsequent training for local peers. The initiative makes use of Lengo, an online platform that allows for reflective online dialogue, workshops, and mentoring. As of March 2019, over 52,000 teachers and over 14,000 school leaders have joined the Teachers First online community, making it Egypt's largest CPD program.[290]

Nafham, an online platform whose name means "we understand" in Arabic, provides educational content that covers over 75 percent of the Egyptian national curriculum from pre-primary to upper secondary grades. The free website offers original video content and encourages teachers, students, and parents to create videos that are then edited by professionals before becoming publicly available. The videos are sorted by grade, subject, term, and academic schedule to ease the platform's use. Since its launch in 2012 in Egypt, Nafham has expanded to Algeria and other Arabic-speaking countries to reach a million students and include over 23,000 videos.

3.3.3 ENHANCING SCHOOL LEADERSHIP

High-quality educational leadership is recognized to be a critical ingredient of good learning outcomes,[291] adoption of innovative teaching approaches, and development of a school culture focused on high-quality teaching and learning.[292] Research from the United States shows that school leadership accounts for up to 25 percent of variation in students' learning achievement, second only to classroom teaching.[293] School leaders also play a critical role in ethical leadership — ensuring schools reflect and promote values that prepare students for citizenship roles and promote inclusive and safe educational environments.

Limited instructional leadership reflects a legacy of school leaders' roles, which historically have often been conceived more in terms of administration and oversight than educational leadership. In much of Sub-Saharan Africa, school principals are not required to have undertaken any formal preparation for their leadership roles.[294] Exceptions include Eritrea, The Gambia, and South Africa, which all have structured qualification programs for school principals.[295] Those increasingly emphasize instructional leadership as well as management and strategic roles.

Still common are opaque promotion processes that both limit effective leadership and contribute to underrepresentation of women in leadership roles. Historically, school leaders have often been selected on patronage grounds or through education officials' social networks, with limited regard to individuals' suitability for these roles.[296] In addition, non-meritocratic selection processes typically bypass women. In most African countries, the proportion of women school principals is considerably lower than the proportion of female teachers, and women are underrepresented in positions of educational decision-making power, such as boards of education and education ministries.[297]

Leadership development should not promote experienced and effective teachers out of the classroom. Instead, experienced teachers should be offered structured opportunities for career advancement through additional responsibility and modelling good pedagogy. Enabling teachers to acquire recognized additional professional qualifications may help increase commitment to leadership development programs. Such programs need to be structured so that study workloads do not detract from instructional or overall strategic leadership roles.[298]

Ongoing support and mentoring from district education authorities can provide support for instructional leadership. Evidence from low-, medium-, and high-income countries suggests that effective district support can contribute to strengthening instructional leadership, facilitating collaboration, and enabling schools to make better use of data to improve learning outcomes and address inequalities.[299] Professional development for all of these groups can take a range of forms; Table 3.1 provides an overview.

TABLE 3.1
IN-SERVICE EDUCATION: PROMISING APPROACHES

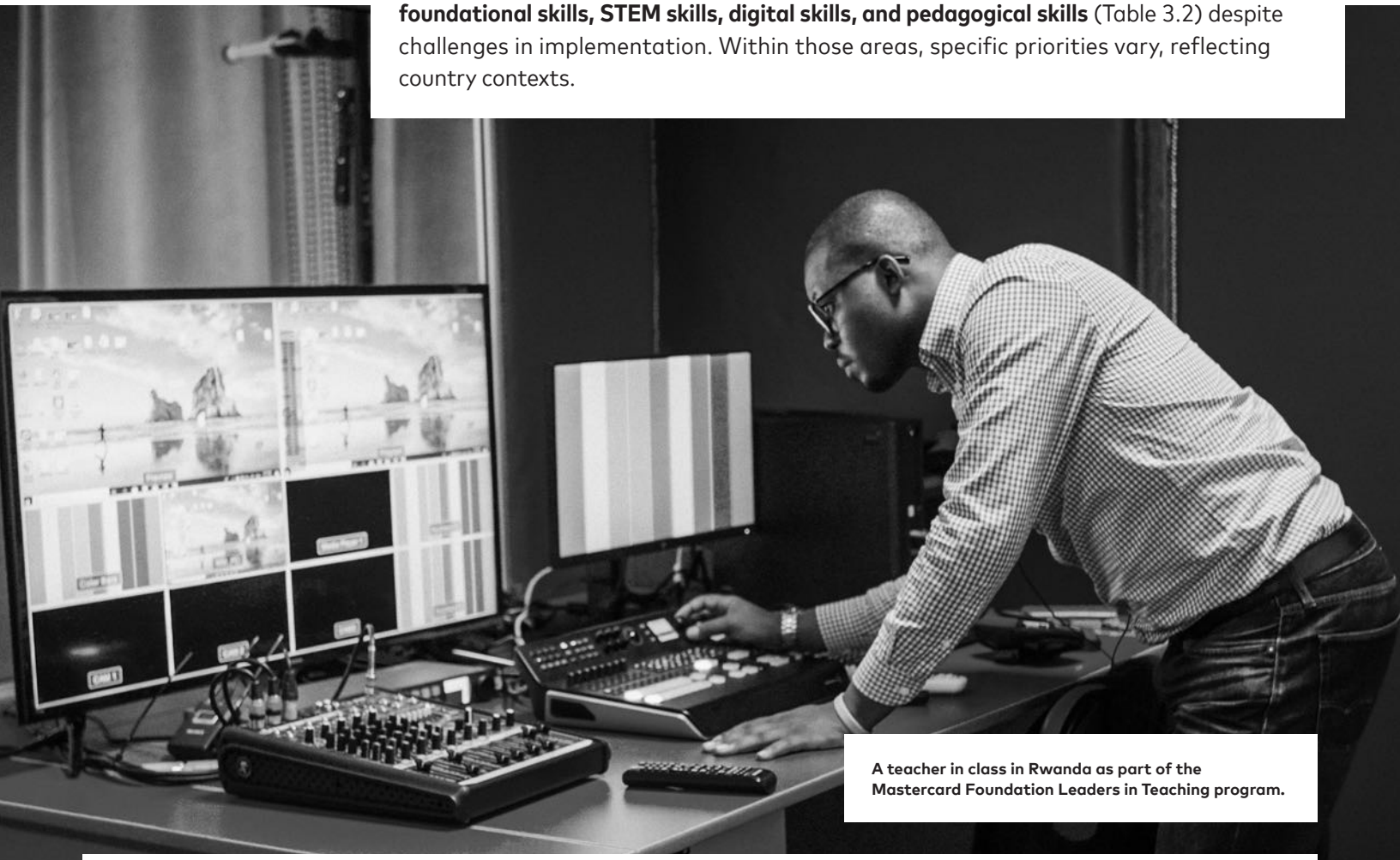
APPROACH	EXAMPLES	INSIGHTS
Short in-school or external training course	Majority of training courses; Forum for African Women Educationalists (FAWE) training courses on gender-responsive pedagogy in East and Southern Africa.	Most common approach; often participants are expected to share learning with others in their school but cascade training is often ineffective.[300]
Peer learning	Lesson Study, Zambia — credited with statistically significant improvements in secondary math and science exam pass rates. OER4Schools in Zambia — a school-based, peer-facilitated learning program integrating mobile devices, OERs, and open-source software to promote innovation and experimentation in teaching.[301] School-based mentoring in Rwanda involved trained existing teachers mentoring others through a monthly meeting. Mentors taught a reduced number of classes to enable them to undertake that work.[302]	Lesson Study was effective because it created a culture of professional responsibility and accountability and an expectation that teachers could learn from one another and take initiative to improve their practice.[303] Mentorship activities must be organized to fit with responsibilities and commitments; senior teachers found an online community of practice helpful as it saved travel time.[304] Also relevant for supporting new teachers and trainees undertaking practicums.[305]
Mentoring and tailored training via regional centres	CAPED (regional teaching centres in Central African Republic and Niger) — strengthening the capacity of principals, education advisers, and inspectors to support the development of unqualified teachers.[306]	Potential to tailor training to local needs and benefit from efficiencies related to geographic clustering.
Day release (trainees attend training on specified days while working, usually full-time)	1+4 program for lower secondary math teachers in South Africa combining subject and pedagogical knowledge and upskilling.	Upgrading programs for unqualified teachers are best sequenced starting with content knowledge, pedagogical knowledge, and then specific pedagogical content knowledge.[307]
Open/distance and blended learning	Stellenbosch University teacher education program combining face-to-face, and webcast teaching, and mentoring via online platforms.[308] South Africa's Advanced Certificate in Education — School Management and Leadership (ACE-SML) for school leaders and managers.[309]	Pure open/distance learning programs are often cheaper but usually less effective than programs blending face-to-face and digital learning or correspondence courses.[310] Coursework demands should be realistic and support, not undermine, teachers' duties.
Informal learning via self-study and OERs	Shule Direct in Tanzania Translation and pronunciation apps to assist language learning and teaching. Mobile text messaging service for biology teachers in South Africa.[311] Rwanda Teacher Self-Learning Academy provided audio-visual materials to strengthen learner-centred pedagogy and English language skills.[312] TESSA has materials in English, French, Swahili, and Arabic that teachers can use to develop lessons.[313]	Impact may be amplified by encouraging sharing through peer networks. Building study and reflection time into teachers' regular timetables increases the likelihood of uptake and success.[314]

Arame Diop Gueye in class in Senegal as part of the Mastercard Foundation partnership with Education Development Centre, Inc.

3.4 PREPARING TEACHERS TO FOSTER KEY SKILLS FOR THE FUTURE OF WORK

Improving the quality of teaching, and thereby, learning outcomes, will have significant effects on increasing young people's preparedness for the future of work. Specifically, better-quality teaching should lead to improved math, literacy, and language skills, and to stronger 21st-century skills through more interactive and learner-centred pedagogies.

African education strategies have a strong emphasis on improving the teaching of foundational skills, STEM skills, digital skills, and pedagogical skills (Table 3.2) despite challenges in implementation. Within those areas, specific priorities vary, reflecting country contexts.



A teacher in class in Rwanda as part of the Mastercard Foundation Leaders in Teaching program.

TABLE 3.2
WHAT DO NATIONAL EDUCATION STRATEGIES PRIORITIZE IN TEACHER EDUCATION?

	COUNTRY EXAMPLES
STRENGTHEN FOUNDATIONAL SKILLS (MATH, LITERACY, LANGUAGE)	
Strengthen teachers' capacity to deliver bilingual education/teaching in home language	Burkina Faso, Eritrea
Strengthen teachers' knowledge base in language of instruction, math	Botswana, Cabo Verde, Eritrea, Rwanda, Tanzania, Zambia
Train teachers to teach more than one subject	Chad
STRENGTHEN STEM SKILLS	
Strengthen teachers' scientific knowledge base	Botswana, The Gambia, Mauritius, Seychelles, Rwanda, Tanzania, Zambia
Recruit new teachers with science skills	Benin
STRENGTHEN ICT AND DIGITAL SKILLS	
Increase use of ICT in teacher training (so teachers experience technology as teaching tool)	Rwanda
Compulsory part of pre-service training to support integration across curriculum	Burkina Faso, Cabo Verde, Zambia
Part of CPD to ensure all teachers are computer literate	The Gambia, Tanzania
Make digital OERs available	Burkina Faso
Train teachers to support distance learning	Chad
Train a cadre of master teachers to support others	Seychelles
STRENGTHEN PEDAGOGICAL SKILLS	
Introduce school-level pedagogical councils	Cabo Verde
Train teachers in learner-centred pedagogy	Chad, Eritrea, The Gambia, Rwanda, Seychelles
Train teachers in gender-sensitive pedagogy	Burkina Faso, Zambia
Develop pedagogical centres at universities	Burkina Faso
Make teacher preparation more learner-centred	Botswana, Tanzania
Develop pedagogical leadership in schools	Mauritius

Source: Sophia M. D'Angelo, Rachel Marcus, and Paola Pereznieto, "Mapping of Teacher Education Priorities in Education Sector Plans in Africa, Secondary Education in Africa Background Note" (Toronto: Mastercard Foundation, September 2019).

Where skills-oriented curriculum reforms involve new subjects, focused efforts will be needed to help teachers learn the necessary content and pedagogical strategies. That is particularly the case for entrepreneurship or work-readiness modules that are recent additions to many curricula. None of the national education strategies examined explicitly mentioned enhancing teachers' capacities in those areas, perhaps because few documents outline plans in that degree of detail. In any given education system, there are choices to be made about the cost-effectiveness of developing those skills among teachers (as with the Educate! and Akazi Kanoze examples discussed in the previous chapter), as compared to making use of external provision. The latter may be less sustainable, even if more quickly achievable.

Developing teachers' digital skills is a priority in many African countries. As Table 3.2 shows, enhancing teachers' digital skills is now a high priority for many countries.[315] That reflects a widespread recognition of the importance of boosting teachers' digital skills to make more use of rapidly developing educational technology and to ensure they are equipped to enable students to develop those skills. As noted in Chapter Two, the added value of enhancing teachers' access to digital technology can be many times greater than that of increasing students' access, particularly in low-resource environments. In some countries, such as Ethiopia, education sector strategies and plans have set explicit targets for digital skills upgrading (Box 3.5).

Rwanda provides a positive example of boosting digital skills in teacher training. Its eTeacher Training at Teacher Training Colleges project introduces techniques for using digital technology across the curriculum and builds the capacity of pre-service teacher trainers to train teachers in using digital technology effectively. Monitoring of that project found that the level of technology in the classroom increased significantly from the baseline in all participating teacher training colleges and the participating secondary schools. The use of digital technology was observed in 13 out of 16 lessons (compared with just two out of 20 at the start of the project). Self-reporting data from teacher trainers also indicates a shift: 70 percent of teachers stated that they used digital technology in their teaching at least twice a week, an increase of 22 percent from the start of the project.[316]

Digital skills upgrading must include development of skills in maintaining hardware and software. Too often, those are neglected, leaving schools with equipment they are unable to use.[317] Where among a school's staff those skills best sit will vary by context: in large schools, there may be budgetary space and need for a specialized technical support role; in small schools, responsibilities may need to fall to a specialist teacher.

BOX 3.5
PROMISING PRACTICE: EQUIPPING TEACHERS TO HELP PREPARE STUDENTS FOR THE FUTURE OF WORK[318]

Ethiopia's Education Sector Development Programme V (2015/16–2019/20) outlines detailed plans to enhance teacher education, many of which address key challenges to skills development for the future of work. That strategy builds on a history of education workforce improvement initiatives aimed at strengthening the quality of teaching.[319] Priorities in the current strategy include:

- increasing the proportion of fully licensed math and science teachers to 100 percent
- establishing math and science training centres, regional trainers, and key teachers in all regions
- providing school-based English mentoring training (English is the language of instruction in secondary schools)
- fully integrating technology into teacher training courses to equip teachers with skills to use technology for teaching and learning
- increasing the percentage of primary and secondary school teachers who use ICT facilities to enhance student learning from 69 percent to 100 percent
- increasing the percentage of teachers and alternative basic education facilitators demonstrating active learning methods and approaches to 100 percent
- upgrading the quality and relevance of continuing professional development (CPD) modules with greater emphasis on CPD priorities (pedagogy, science and mathematics, continuous assessment, and core foundational skills)
- increasing the proportion of secondary school leaders qualified at the master's degree-equivalent level to 100 percent

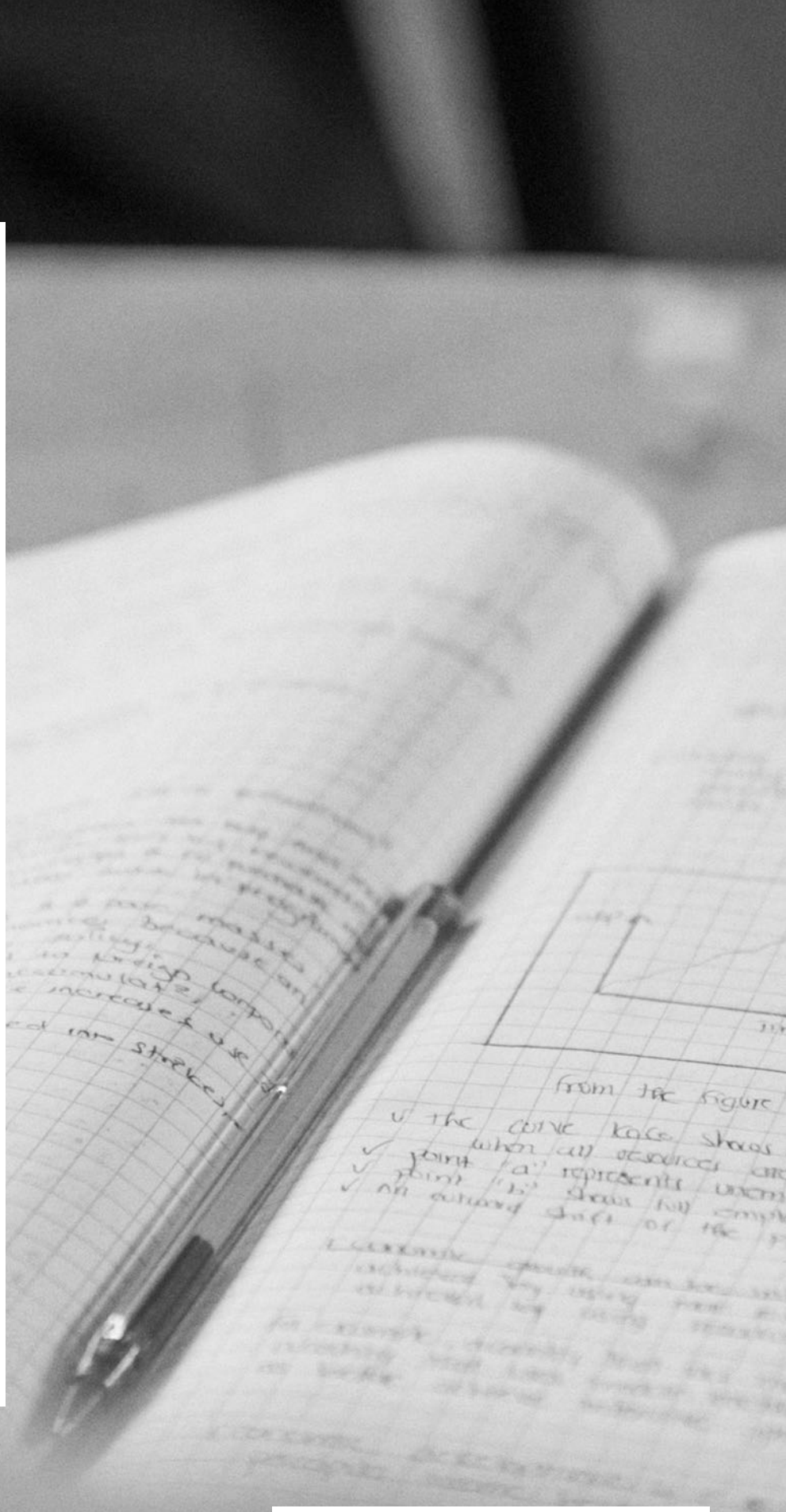
Evaluation of the implementation and impact of that strategy will provide valuable lessons for other countries.

A student in a classroom in Ethiopia as part of Mastercard Foundation Scholars Program partnership with Forum for African Women Educationalists.

3.5 RECOMMENDED ACTIONS

- **Expand recruitment to fill projected gaps (10.8 million secondary school teachers by 2030).** That will require a huge expansion in teacher recruitment and training while also improving teachers' working conditions to attract good-quality new entrants and reduce attrition. Expanding recruitment and training on that scale will depend on a substantial increase in education sector spending and in the efficiency of that spending.
- **Invest in high-quality pre-service teacher training.** To meet Africa's growing demand for teachers at the secondary level, governments should prioritize investment in high-quality pre-service teacher training. Attracting top students into the system, providing high-quality training, and developing stronger promotion and leadership pathways for high-performing teachers that allow them to provide instructional leadership and mentor junior colleagues can create a virtuous cycle leading to improved learning and cost efficiencies.
- **High-quality pre-service teacher training should:**
  - Equip new teachers with a sound understanding of the subject matter content they will need to teach, fluency in the language of instruction, and pedagogical skills.
  - Model competency-based, learner-centred approaches and help teachers develop strategies for using them in challenging environments.
  - Include periods of supervised practice for pre-service teachers and ongoing mentoring upon deployment through peer networks and from experienced teachers.

- **Upgrade the skills of current teachers through continuing professional development,** focusing on upgrading pedagogical skills, improving mastery of subject-matter content, and developing new skills. Make use of technology and distance learning opportunities to supplement face-to-face approaches, and link skill improvements to promotion opportunities.
- **Institute certification programs for unqualified teachers, using a mixture of face-to-face and distance learning approaches.** Those may need to include remedial training in core subject areas, efforts to improve fluency in the language of instruction, as well as training in pedagogical and digital skills.
- **Prioritize digital skills development for all teachers.** Teachers must be equipped with the ability to not only teach digital skills as a subject but to make use of digital tools to support teaching, learning, and assessment. Continued emphasis should be placed on upgrading hardware and ensuring schools have staff with skills to maintain technology.
- **Invest in strengthening school leaders' capacity to provide instructional leadership.** Capacity-building efforts should be structured to enable good teachers to continue to teach, while supporting them to progress in their careers and share their experience with others.



A student's notebook during math class in Rwanda.

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FOCUS

STRENGTHENING SECONDARY EDUCATION FOR REFUGEES AND DISPLACED YOUTH

Conflict and humanitarian crises define the educational environments of many young people in Africa. Well over half the countries in Africa have experienced conflict and/or protracted refugee situations since 2010.[320] Discussion of the delivery of education in Africa, therefore, must consider the unique needs of refugees and displaced youth. As of the end of 2018, there were over six million refugees in Sub-Saharan Africa, of which 57 percent were children and youth under the age of 18.[321] In 2017, an estimated 152 million children were living in conflict-affected areas.[322]

Conflict-affected youth are significantly less likely than their peers to attend school. There are substantial in-country differences driven by low enrolment rates in regions impacted by cross-border or internal displacement. In Ethiopia, for example, the secondary gross enrolment ratio in districts affected by refugees varied from just one percent in Samara to 47 percent in Jijiga in 2016.[323] On average in Ethiopia, the gross enrolment rate at the secondary level in refugee-hosting districts was nine percent, compared with 35 percent for the country as a whole.[324] Those low levels of enrolment mean that young people in conflict-affected areas have fewer opportunities to gain skills to prepare them for the world of work.

While secondary enrolment rates in conflict-affected countries are notably lower, they have experienced a general upward trend over the last decade. That increase may be linked to rapid growth in education opportunities in post-conflict environments. For instance, Sierra Leone has made substantial progress in access at both lower and upper secondary education since the end of its civil war (for more details, see the case study in Chapter Five).[325]

Refugees face a series of obstacles as they attempt to navigate opportunities to access education in their host countries. National curricula vary across contexts, creating the need to repeat years of schooling, invalidating previously acquired certification, and/or preventing teachers from working.[326] Lack of documentation can limit students' access to school, though there are promising practices, such as in Ethiopia, where students arriving without documents take a placement exam to determine their appropriate grade level within the national education system.[327] Language of instruction can present a barrier to teaching and learning, while underfunding of schools and overcrowding can also affect learning.[328] Within refugee camps, the courses of study offered in secondary schools are often narrower than full curricula, potentially limiting opportunities to develop skills for work or to transition to higher education.[329] Discrimination and backlash compound those challenges and affect refugees' and displaced young people's experiences of education.[330]

As well as improving productivity and employment, countries can reap additional benefits by enabling refugees and conflict-affected youth to complete a full, high-quality secondary education. Inequitable access to education may contribute to underlying conflict.[331] Conversely, access to good-quality secondary education can contribute to positive societal development through the promotion of inclusion and shared values and/or signalling a government's commitment to the population.[332] There may thus be a peace and inclusivity dividend to societies that offer access to secondary education for all youth.

Secondary students in class at a refugee settlement in Uganda.

HOW CAN EDUCATION SYSTEMS ENABLE REFUGEES AND DISPLACED YOUNG PEOPLE TO DEVELOP RELEVANT SKILLS FOR WORK?

Offering conflict-affected youth the chance to acquire skills for work would help meet the work and life aspirations of millions of youth while also contributing to African societies' development of human capital that can help drive productivity. Integration of refugees and displaced young people into national education systems is increasingly considered best practice, but often approached in very different ways. As success in both education and employment varies widely between displaced and refugee groups, there is no one solution, but rather a need for coordinated efforts and tailored solutions specific to context.

INTEGRATING REFUGEES AND DISPLACED YOUTH INTO EDUCATION POLICY FRAMEWORKS AND SECTOR PLANNING

The effort to ensure refugees and displaced young people's right to education is substantially strengthened by a positive legal and policy framework. Chad, Djibouti, Ethiopia, Kenya, Ghana, Rwanda, Uganda, and Zambia have all agreed to pilot the UNHCR's Comprehensive Refugee Response Framework (CRRF), which seeks to create enabling environments for refugees to succeed in host communities.[333] Since then, the Ethiopian government has passed a law allowing refugees to access public education and obtain work permits and drivers' licences.[334] Box F2.2 below provides another promising example from Chad, which demonstrates how education sector plans can be designed around refugees' concerns.

As success in both education and employment varies widely between displaced and refugee groups, there is no one solution, but rather a need for coordinated efforts and tailored solutions specific to context.

BOX F2.1
PROMISING PRACTICE: UGANDA'S EDUCATION RESPONSE PLAN

Uganda has pursued a policy of refugee inclusion and allows refugees to access its public primary and secondary schools.[335] Uganda's 2018 Education Response Plan creates a roadmap for addressing the education needs of 34 refugee-hosting sub-counties in 12 districts, intending to reach 675,000 refugees and domestic students per year.[336] In Uganda, humanitarian response initiatives need to follow the "70:30 guiding principle," whereby 30 percent of humanitarian support goes to the development of the host communities.[337] In addition, the country's National Policy for Internally Displaced Persons grants displaced children the right to "the same access to education as children elsewhere in Uganda" and further requires "special efforts" to ensure full and equal participation for internally displaced women and girls.[338] Uganda's legal frameworks also grant refugees basic rights, such as freedom of movement, as well as the right to work, establish a business, and own property.[339] However, a 2010 act confirms that refugees must obtain work permits, whose cost can be prohibitive, leading many refugees to enter the informal economy.[340]

Refugee settlements that allow free movement and access to education and employment for refugees and host communities increase displaced young people's opportunities to develop relevant skills. One example is the Kalobeyei settlement in the Kenyan district of Turkana West. In 2018, the UNHCR and World Bank launched the Kalobeyei Integrated Social and Economic Development Programme (KISEDP), with eight key components including education, health, protection, agriculture, and entrepreneurship. The core objective of the education program is to enhance access to equitable formal and non-formal education and training for refugees and host population children. The plan has targets for constructing schools, deploying qualified teachers, recognizing and responding to the needs of learners with specific vulnerabilities, and supporting alternative learning programs to better respond to nomadic and marginalized children. It aims to improve the socioeconomic conditions of refugees and host communities and reduce dependence on humanitarian aid through agriculture and livestock production and access to services for both refugees and host communities alike.[341]

BOX F2.2
PROMISING PRACTICE: INCORPORATING REFUGEES' VOICES INTO EDUCATION PLANNING IN CHAD

Chad, with a refugee population of 410,000, mainly from Central African Republic and Sudan, undertook a participatory assessment in 12 refugee camps as part of its 2013 Transitional Education Plan. That process raised three concerns from Sudanese refugees: (1) the change of language of instruction, (2) recognition of diplomas issued in Chad upon return to Sudan, and (3) the threat of loss of nationality, culture, religion, and national identity.[342] Those concerns were taken into account in developing the education plan.

To finance implementation of the plan, the Chadian government accessed funding from the Global Partnership for Education and launched an emergency program covering school lunches, school construction, and pedagogical materials.[343] As part of its integration policy, in 2018, the government converted 108 schools in 19 camps and refugee sites into regular public schools, assigned 307 teachers to those schools, and provided training to certify an additional 439 refugee community teachers.[344]

ADDRESSING LIMITED SUPPLY OF EDUCATION FACILITIES TO IMPROVE ACCESS

A common approach to increasing access to relevant secondary education for refugees is through the introduction of double-shifting in schools. Refugee camps often have significantly fewer secondary schools than primary schools, and space is rarely sufficient to meet demand. In areas outside camps that have accommodated significant numbers of refugees and displaced people, there is often not enough capacity to educate all secondary-age young people. A situation analysis from Uganda, for example, found that at the end of 2017, there was an average of 143 students per secondary classroom in areas with significant numbers of refugees.[345] For all secondary-age students to attend, an additional 2,342 classrooms and 2,071 teachers would be needed to meet the government standards of 53 students per classroom/teacher.[346] Box F2.3 below discusses double-shifting as a means of expanding secondary education, drawing on the example of the Dadaab camp in Kenya. Although double-shifting can reduce the unit costs associated with education[347] and make education facilities available for refugees, if refugees and host country children are educated in separate shifts, it is unlikely to contribute to processes of social inclusion.

BOX F2.3
EXPANDING ACCESS TO SECONDARY EDUCATION IN KENYA'S DADAAB REFUGEE CAMP

Kenya's Dadaab Refugee Camp is one of the five largest refugee camps in the world, home to over 200,000 refugees.[348] Like many schools in the surrounding communities, schools in the camp face high pupil/teacher ratios, underqualified or untrained teachers, poor infrastructure, and a lack of materials.[349]

Windle Trust, which operates secondary schools in Kenya's Dadaab camp under contract with UNHCR, initiated double shifts (one cohort of students attending in the morning and another in the afternoon) to overcome constraints on building more schools within the camp.[350] The introduction of double-shifting in four selected secondary schools in Dadaab doubled the intake from 2,558 to 5,118 students.[351]

Students at school in Uganda.

Education technology has the potential to reach young people who are prevented from attending school due to conflict. For instance, War Child Holland's Can't Wait to Learn program in Sudan has pioneered tablet-based applied math games incorporating math learning into an interactive and multimedia activity available on tablets to out-of-school children. Refugee camps and areas where displaced populations live are often off-grid with poor or unreliable infrastructure. More efforts are being made to increase access to complementary inputs in underserved areas. For example, UNHCR and Vodafone's Instant Network Schools program provides electricity through solar-powered batteries, internet through a satellite or mobile network connection, and innovative digital content through preloaded and online resources.[352] Currently, there are 36 Instant Network Schools in eight refugee camps across the Democratic Republic of Congo, Kenya, South Sudan, and Tanzania. Those schools connect classrooms to the internet, providing hardware, software, and teacher training to deliver digital educational content, and to date have reached over 86,000 refugee students and one thousand teachers.[353]

... recruiting more female teachers may contribute to creating more girl-friendly teaching and learning environments ...

Interventions that are designed towards fostering safe, girl-friendly classrooms and schools can improve access and learning for displaced and refugee girls. Improving the safety of school facilities is especially crucial for young women and girls in conflict-affected areas and refugee camps, as they often face an increased risk of multiple forms of gender-based violence and discrimination.[354] Those include sexual violence and child marriage, both of which are fundamental violations of human rights and contribute to elevated levels of adolescent pregnancy. Effective interventions may include transportation or accompaniment to and from school, reinforced school infrastructure and boundaries, negotiations with armed groups, the provision of on-site housing for students or school security, the use of alternative schedules, distance education, as well as the relocation of students and schools.[355] Also, recruiting more female teachers may contribute to creating more girl-friendly teaching and learning environments; that may require enhanced action to ensure their safety, as gender-based violence is an important factor contributing to the low numbers of female teachers in conflict-affected contexts.[356] Safe spaces programs that offer adolescent girls and young women opportunities to develop life and livelihood skills and strengthen foundational skills are an alternative for girls without access to secondary education.[357]

ADAPTING CURRICULA TO MEET THE NEEDS OF REFUGEE AND DISPLACED YOUTH

Recognizing that schools in refugee camps and settlements often offer a restricted curriculum and opportunities for developing relevant skills, there are increasing efforts to include pedagogical approaches that should contribute to skill development. For example, Uganda's Education Response Plan for Refugees and Host Communities outlines a range of innovations, including the use of ICTs for learning, addressing psychosocial issues for refugee children and teachers, enhancing safety, introducing innovative but low-cost pedagogies, making greater use of students' spoken languages, and drawing on refugees as assistant teachers, especially in crowded classrooms.[358]

Following host country national curricula can increase displaced students' likelihood of acquiring relevant qualifications and integrating into host societies. For example, in Kenya, schools in refugee camps are registered with the Ministry of Education, and thus students are taught with the Kenyan national curriculum and participate in national qualifying exams.[359] However, in situations of short-term displacement, it may be important for students to continue studying elements of their home countries' curricula. Further, language of instruction can be a significant challenge as young people cross borders. Training teachers and students in language skills is of utmost importance in order to successfully integrate refugees and prepare them for the world of work. Those nuances point to the importance of harmonized curricula and portable qualifications across neighbouring countries, as is planned in the Economic Community of West African States (ECOWAS) and the East African Community (EAC).

Training teachers in conflict resolution and pedagogy for multicultural classrooms helps foster safe learning environments and increases the quality of teaching. Refugees and conflict-affected youth who have faced trauma have unique cognitive and psychological needs. There is growing recognition of the need to integrate socioemotional support strategies and multi-faceted pedagogy into teacher training programs, though the evidence of impact of those programs often varies.[360] The Kenyan Equity in Education Project (KEEP), funded by the NGO World University Service of Canada, provides a variety of activities such as teacher training, remedial education opportunities, and cash transfers to students in the Kakuma and Dadaab refugee camps.[361] It has been proven effective in improving girls' academic performance and positively influencing parental and community attitudes towards girls.[362] Teacher training is especially important for displaced students facing multiple forms of marginalization, such as girls, disabled students, non-native language speakers, and refugees from lower socioeconomic backgrounds.

There is growing recognition of the need to integrate socioemotional support strategies and multi-faceted pedagogy into teacher training programs.

Accelerated learning programs offer a potential alternative educational opportunity for conflict-affected young people who cannot access regular secondary schools. For example, from 2013 to 2019, the Refugee Education Trust (RET) offered an Accelerated Learning Program (ALP) targeted to youth aged 16 to 35 in Dadaab Refugee Camp who had completed primary school. It was intended to address demand for secondary education among refugee youth, improve completion rates, and expand young people's opportunities to access employment or higher education. The ALP condensed the four-year secondary school curriculum into two and a half years; RET served as a private exam site for the national secondary school leaving exam. Although 67 percent of participants completed the program, only 38 percent of those who completed passed the Kenyan secondary school leaving exam. That was attributed to factors such as students' low primary school achievement, low attendance rates, and high teacher turnover.[363] A limitation of the program, as with other Accelerated Education Programs, was its minimal reach: in its first four years, from 2013 to 2017, the Dadaab program enrolled only 647 students, one-fifth of whom were female.[364] Despite the potential benefits of accelerated learning programs, the evidence highlights the need for ensuring quality of instruction and scaling promising models.

One approach to reaching scale is to ensure ownership of accelerated approaches within Ministries of Education as well as alignment with the national curriculum. In Uganda, War Child Canada has worked with the country's National Curriculum Development Centre (NCDC) to develop an accelerated version of the national lower secondary curriculum that covers the material taught in S1 to S4 in two years instead of four. The new accelerated curriculum is currently being implemented in eight secondary schools in the Adjumani refugee settlement in northern Uganda. Given the close involvement of the NCDC, the accelerated program has the potential to be scaled to other refugee settlements, or as a flexible approach for other vulnerable communities across the country.[365]

Programs that provide TVET and skills training help refugees transition into the labour market. For example, the Qualifications and Employment Perspectives (QEP) project in Ethiopia suggests a promising approach to integrating refugees into the labour market. The QEP project builds capacity of TVET institutions by strengthening their linkages with industry, improving their relevance to the labour market, and training teachers in order to foster positive relationships between refugees and host communities.[366] Even with relevant skills training, refugees often face significant obstacles to formal-sector work. In Kenya, for example, the required "Class M" work permits for refugees are issued infrequently. In Uganda, a 2010 act confirms that refugees must obtain work permits, costing a prohibitive $1,000 per year.[367] Most refugees thus enter the informal economy, highlighting the importance of secondary education enabling young people to develop 21st-century and entrepreneurship skills that can be used across a range of sectors and throughout life.

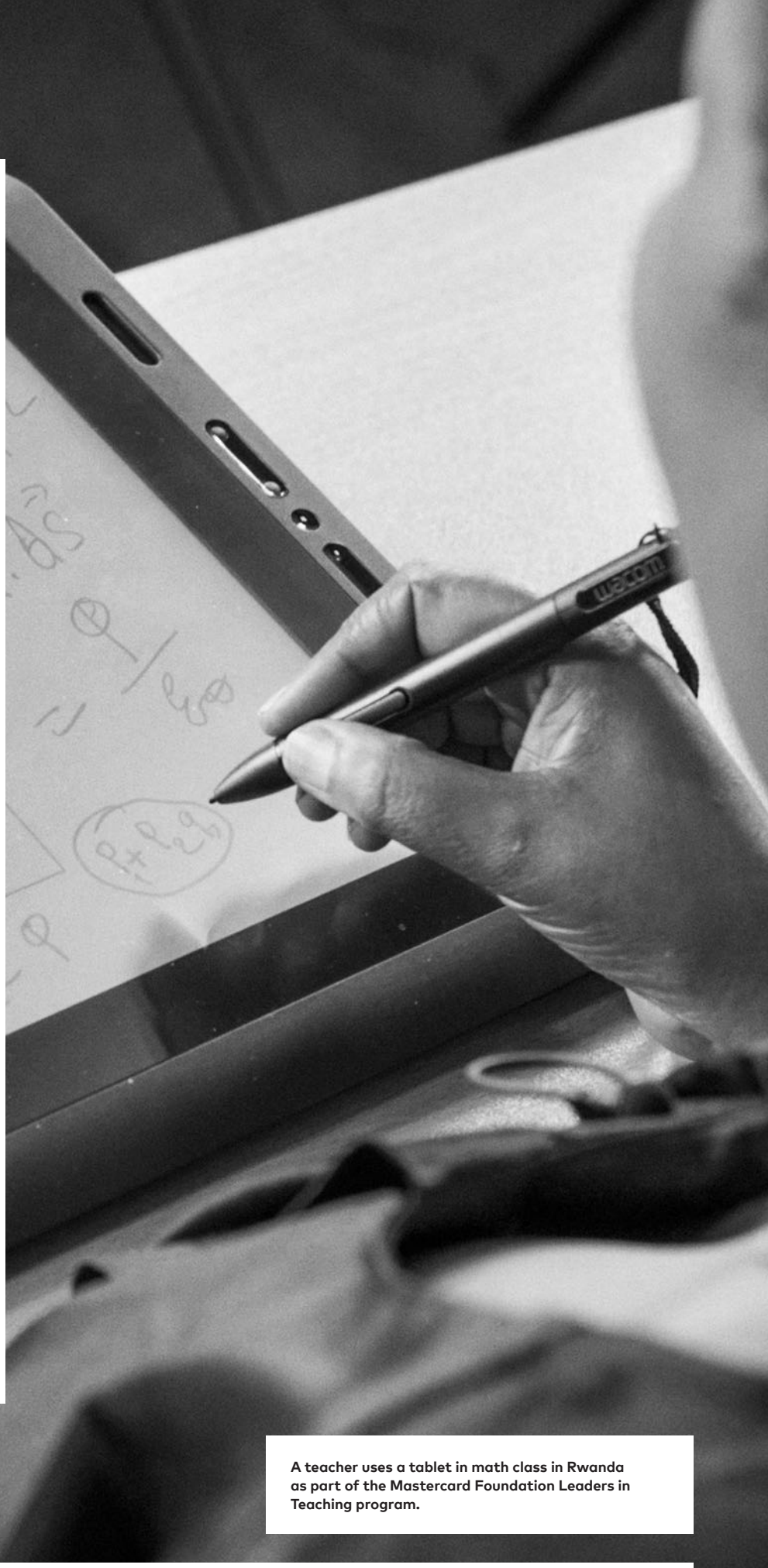
Students participate in a business class in Tanzania as part of a Mastercard Foundation partnership with Fundación Paraguaya.

CONCLUSIONS

Young people affected by conflict are substantially less likely to participate in secondary education and are thus missing opportunities to develop critical skills for work. Measures to increase the access of refugees and displaced young people to secondary education include bridging programs to make up for interruptions in education, programs to address language barriers, adaptations to account for differences in curricula, and efforts to enable students to integrate into host country education systems.

Integration into existing systems can help displaced young people build networks for future employment opportunities and promote social cohesion: that is most effectively achieved where the legal and policy framework supports refugee rights and inclusion. To expand system capacity, flexible approaches to hire, train, and certify additional teaching staff from displaced and host communities should be used, ensuring that teachers receive training in supporting young people affected by conflict.

Education technology also has a promising role in complementing and strengthening secondary education provision in contexts of conflict and displacement, particularly where school infrastructure is lacking. Further, a stronger emphasis on TVET and entrepreneurship skills is needed to support the majority of refugee youth who face restrictions on formal-sector employment in host countries and are likely to find it difficult to enter the labour market.



A teacher uses a tablet in math class in Rwanda as part of the Mastercard Foundation Leaders in Teaching program.

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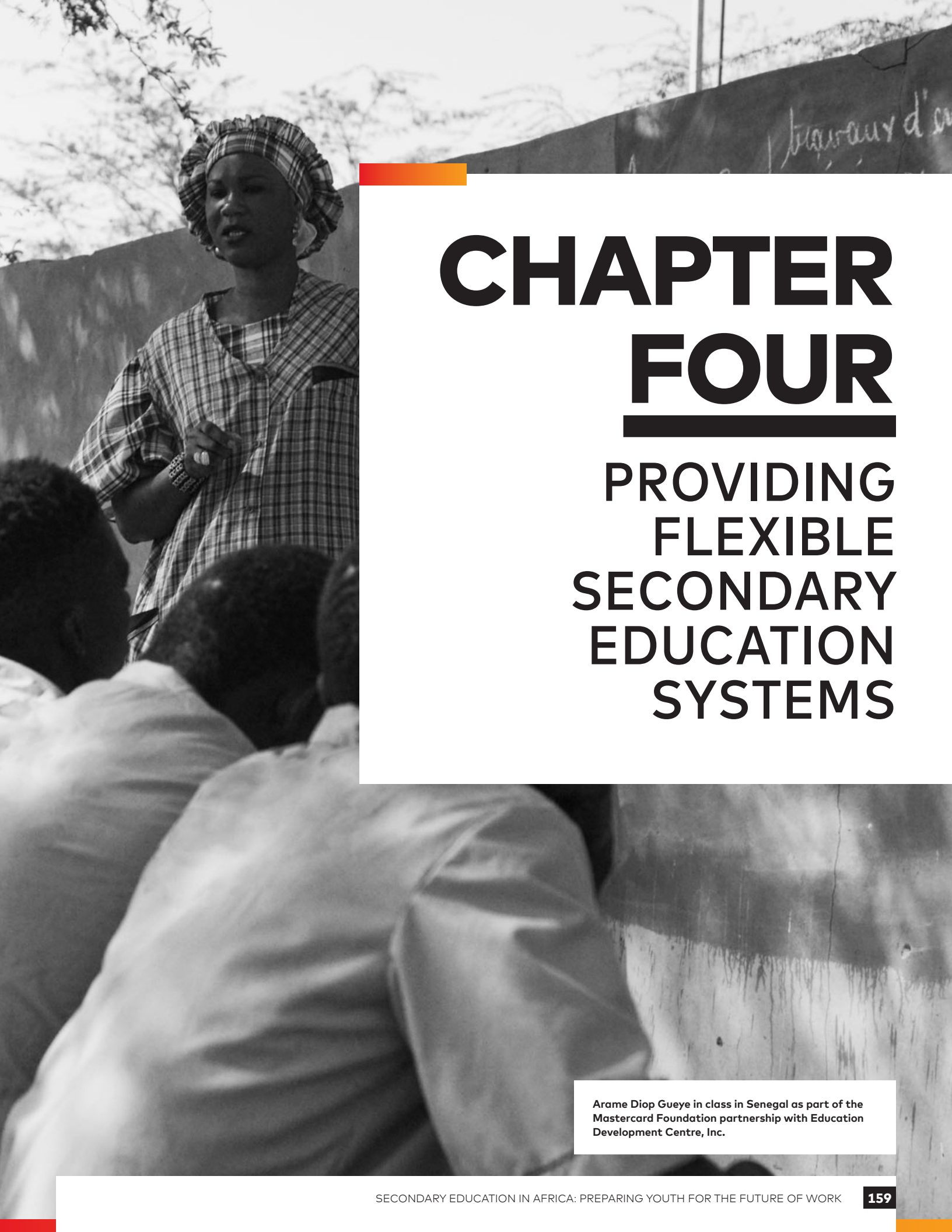
CHAPTER FOUR

PROVIDING FLEXIBLE SECONDARY EDUCATION SYSTEMS



Arame Diop Gueye in class in Senegal as part of the Mastercard Foundation partnership with Education Development Centre, Inc.

KEY TAKEAWAYS:

- **Flexible secondary education systems and pathways are required to meet the needs of diverse youth.** The transition from the education system to the world of work is not linear for many secondary-school-age youth. Late entry, repetition, dropout, and re-entry after extended absence are all challenges prevalent in many Sub-Saharan African countries.
- **Approaches that show promise in meeting those needs include:** alternative education models; increased mobility between general and technical secondary education; and national qualifications frameworks that enable youth to move between informal training, formal education, and the workplace.
- **Flexible secondary education systems are also needed to meet the demands of the changing nature of work and complex global challenges such as climate change, migration, and urbanization.** A modular approach to education and skill development can help youth upskill and reskill in the face of rapid change.
- **The role of private and other non-state providers in education is increasingly important** in the provision of additional innovative and flexible pathways for large numbers of youth, but the public sector must retain a strong regulatory role.

Students in business class in Tanzania as part of Mastercard Foudnation's partnership with Fundación Paraguaya.

4.1 THE CASE FOR MORE FLEXIBLE EDUCATION SYSTEMS

Flexible education systems and pathways are required to meet the demands of the changing nature of work and emergent global challenges. Flexibility also is critical to meet the needs of diverse young people, many of whom face challenges in accessing and completing a standard cycle of education.

Young people increasingly need opportunities for continuous and lifelong learning and training so they can upskill and reskill to adapt to the changing nature of work, as described in Chapter One. Rapid technological advances in particular have increased the need for a modular approach to education and skill development.

Additionally, youth need to develop technical skills, resilience, and adaptability to cope with and confront other global, regional, and national trends such as climate change, migration, and urbanization. Flexible education and training systems that offer dynamic and experiential opportunities to gain knowledge and skills as new challenges and opportunities emerge, as well as portable accreditation, can act as a bedrock to sustainable adaptation by communities and countries.[368]

Young people experience diverse opportunities and challenges in their journeys through school and into work, and have different aspirations, passions, and capabilities. In particular, a high proportion of African children and youth face marginalization in education in a range of interrelated ways, which can interrupt their educational trajectories. Sixty-five million secondary-school-age youth in Sub-Saharan Africa are out of school, and millions more drop out before completing a full cycle of primary or lower secondary education.[369] For most youth who do enter school at some point in their lives, their educational journey is non-linear — often characterized by high rates of repetition, low attendance, movement in and out of the system, and premature dropout.[370]

As they reach secondary-school age, young people who face economic disadvantages often experience significant pressure to leave the education system to seek work and help support their families. Completion rates decline as the level of education increases. That is in part because opportunity costs of children's time increase as they age and face increasing pressure to make an economic contribution to the household.[371] That challenge is exacerbated by the prevalence of over-age students in many African education systems. UNESCO reports that there are 32 countries on the African continent where 25 percent of pupils or more are at least two years over-age for their grade in lower secondary school — that includes seven countries where the figure is over 50 percent.[372]

UNESCO reports that there are 32 countries on the African continent where 25 percent of pupils or more are at least two years over-age for their grade in lower secondary school

Other factors that contribute to a need for greater flexibility include: a lack of financial resources to pay for the cost of schooling; insufficient school places; high-stakes exams that restrict entry; and challenges such as conflict, natural disasters, or strikes that shut down schools, sometimes for extended periods of time. Young people affected by conflict or climate change often must interrupt their education to seek safety or new livelihoods.

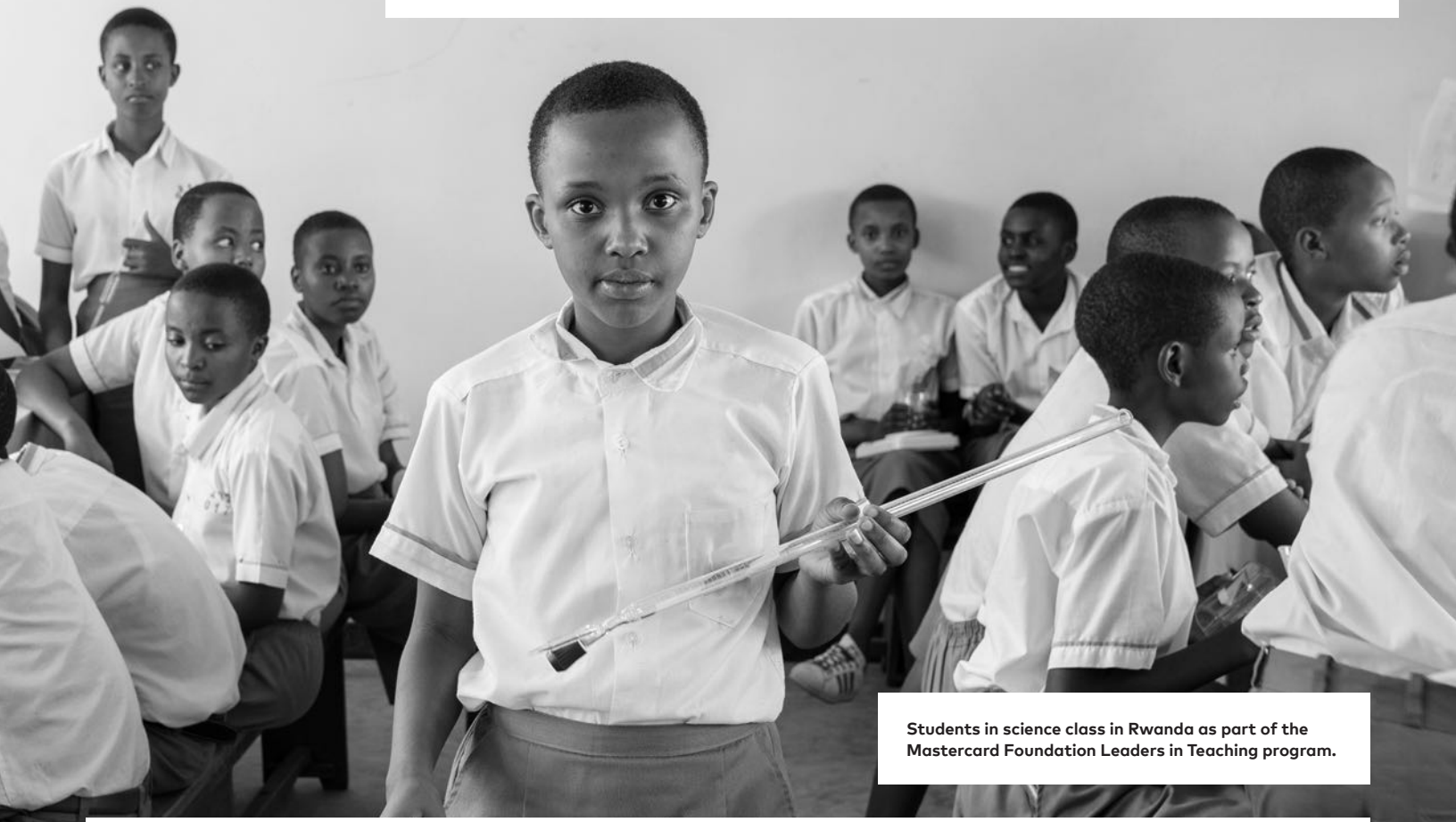
The need to move continually between school and work is a reality for many adolescent and young people in Sub-Saharan Africa.[373] Often, the departure from school to work first occurs in primary school or after a partial secondary school education, when youth work in the household, family farm, or business, or seek outside work or entrepreneurial opportunities in the informal or agricultural sectors. Many young people work, save, and re-enter education, or combine work and schooling.

Young women face additional pressures that can inhibit their ability to complete school. Rates of early pregnancy in many Sub-Saharan African countries are among the highest in the world,[374] and relatively few young women re-enter school after having a child due to pressure from family, community, school, and sometimes government policy.[375] Social attitudes about marriage, the value of girls' education, early pregnancy, and in some cases, the risk of sexual violence, are added threats to completion.

Yet despite those realities, secondary education systems in Africa and many parts of the world tend to be "one size fits all." Traditionally, they have been designed to support students most likely to be able to progress to tertiary or other post-secondary education. That represents a small minority: less than 10 percent of students reach the tertiary level in Sub-Saharan Africa. Secondary education systems generally are not designed to offer up-to-date, practical, high-quality opportunities to develop the knowledge and skills needed by young people, including refugees and internally displaced youth, disabled youth, and other marginalized groups. Additionally, alternative education and training programs that do cater to out-of-school youth are limited in number and scope. More flexible education and training systems at the secondary level have the potential to offer lifelong learning pathways to accommodate the diverse needs of youth.

4.2 PROMISING APPROACHES TO INTEGRATE FLEXIBILITY

What kinds of solutions will make secondary education systems more flexible and responsive to the needs of *all* youth? Answers to that question are multifaceted and include expanded access to education and training, alternative models of learning, non-state provision and public-private partnerships, increased mobility between general and technical secondary education, and portable accreditation and recognition. Common across those approaches is the importance of scale and sustainability within education systems. It is critical that policymakers consider ways to incorporate flexibility at the system level to develop legitimized and recognized pathways between levels and components of the education system, and between the education system and the world of work.



Students in science class in Rwanda as part of the Mastercard Foundation Leaders in Teaching program.

4.2.1 ALTERNATIVE MODELS OF LEARNING

Alternative education and training programs that cater to out-of-school youth are limited in number and scope, and are often run by non-state actors. While important in helping to fill a gap, few such alternative programs exist at sufficient scale to accommodate the large numbers of out-of-school youth in Africa. Even fewer are available through public education systems or are accredited and recognized by the state and formal-sector employers. Further, for those young people who prematurely leave lower secondary school, few opportunities exist for secondary-level technical and vocational training, though many countries such as Senegal and Burundi are expanding their offerings in that area.

Successful alternative models of learning are needed and should be recognized, and, where appropriate, incorporated into formal systems. Alternative education programs that are most successful are those that have multiple entry and exit points and close associations with formal education. Successful programs are generally tailored to the local context, are sustainable and scalable through diversified sources of funding, and have diverse and multi-stakeholder partnerships.[376]

BOX 4.1
PROMISING PRACTICE: SCHOOL IN A BAG — A FLEXIBLE LEARNING APPROACH IN LESOTHO AND MALAWI

Flexible approaches such as "School in a Bag" in Malawi and Lesotho, can help ensure that disadvantaged youth, especially those affected by HIV/AIDS, remain in school. South Africa's Institute for Distance Education and University College London's Institute of Education developed the program, which included a "'School in a Bag" that held pens, notebooks, textbooks, and self-study guides for English and math. It was designed to encourage independent learning for children for whom school attendance was often erratic. The approach also incorporated a buddy system, which offered peer support for learning and catch-up clubs run by youth volunteers that provided further learning opportunities in welcoming, informal environments during after-school hours.

Offered in 20 primary schools in Malawi and 16 secondary schools in Lesotho in areas with high rates of both HIV and school dropout, the program was found to achieve reduced dropout rates (up to 45 percent in Malawi), particularly for older children, higher math scores, reduced isolation, and improved self-esteem. Those positive impacts were attributed in part to the collaborative approach in which community members, teachers, and youth volunteers were included in improving inclusiveness of schools by developing "circles of support" around vulnerable children at risk of dropping out.[377]

While that program has not yet scaled nationally, it offers an example of an innovative and alternative approach delivered within the school system.

Accelerated Education Programs (AEPs) use a fast-tracked approach to make up for time and learning lost. According to the Accelerated Education Working Group led by UNHCR, an AEP is "a flexible, age-appropriate program, run in an accelerated timeframe, which aims to provide access to education for disadvantaged, over-age, out-of-school children and youth."[378] Provision of equivalency certification at the respective level of schooling is a critical element of a successful Accelerated Education Program.

Under the umbrella term "accelerated education," there are a variety of different types of programs and approaches, which, according to the Accelerated Education Working Group, include:

- *Accelerated learning* — Approaches to teaching and learning, informed by cognitive and neuroscience, that provide more engaged, proficient, and faster development of learned knowledge and basic skills. In practical terms, that may involve condensing the curriculum, concentrating on basic skills and competencies, and having smaller classes and allowing more time for learning tasks.

- *Catch-up program* — A short-term transitional education program for children and youth who had been actively attending school prior to an educational disruption, and which provides students with the opportunity to learn content missed and supports their re-entry into the formal system.

- *Bridging program* — A short-term, targeted preparation course that supports students entering a different type of certified education from that in which they were previously enrolled. For instance, that might involve language acquisition for refugees to enter host country education.

- *Remedial program* — Additional targeted support, concurrent with regular classes, for students who require short-term content or skill support to succeed in regular formal programming.[379]

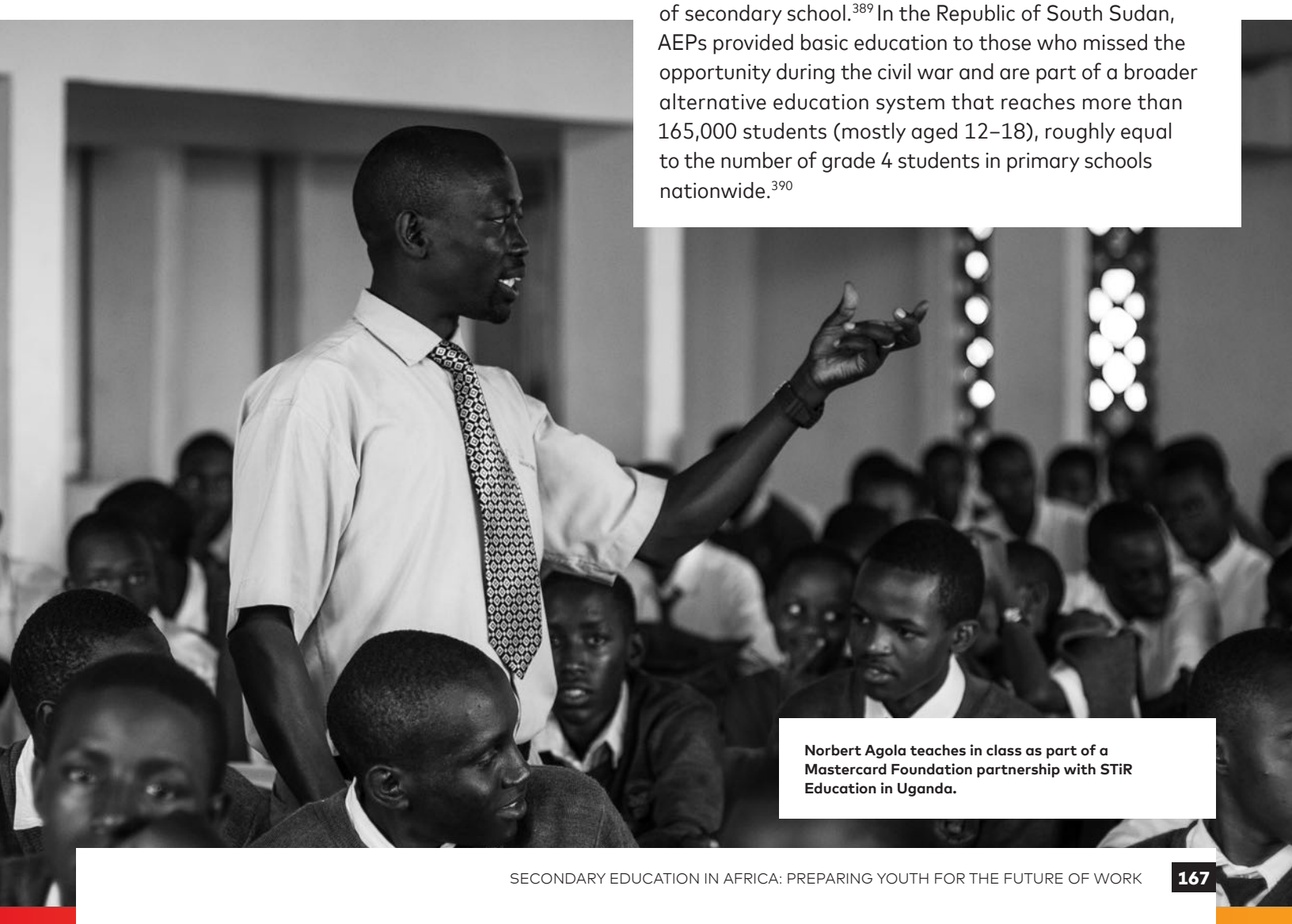
Accelerated Education Programs should include a mix of foundational and other skills to support youth's reintroduction into school and/or their eventual transition to work. Those skills include foundational literacy and numeracy, including fluency in the language of instruction, 21st-century skills, and digital skills. Further, specific skills in STEM fields, technical and vocational skills, and entrepreneurship and/or work readiness skills are also important. For example, a study of Malawi's Complementary Basic Education Program found it provides a framework not just for the delivery of basic education, but for a range of practical skills to improve livelihoods, which marks a shift from the more traditional, high-cost, formal technical and vocational training in the formal secondary system.[380]

Provision of equivalency certification at the respective level of schooling is a critical element of a successful Accelerated Education Program.

Accelerated Education Programs and other alternative programs can help formal education systems become more flexible and innovative. Those alternative education models can often adapt to offer different skills more easily than secondary schools — they can be a source of innovation so that the most promising modules and curriculum elements can be scaled into mainstream education. While those programs largely focus on foundational skills, there is potential to deliver innovative curricula that provide a framework for both basic education and a range of skills, such as 21st-century, digital, and technical skills, to improve livelihoods. Efforts to innovate by adding more skills, however, can also be challenging given an already accelerated, and thus full, curriculum.

Yet currently, the majority of alternative approaches, though innovative, only reach a small number of African youth and are resource-intensive to operate. The Learning Links Project in Liberia, supported by USAID, allows 2,500 teen girls who have left school due to pregnancy to access education. It provides an innovative, safe, and monitored learning environment through tutor-mentors, using the Ministry of Education's alternative basic education curriculum, SMS-based evaluations, and micro-incentives.[381] Programs allowing students to accelerate within formal schools to make up for lost schooling have been run in Madagascar[382] and Zimbabwe, with some level of success. A few Accelerated Education Programs have also been set up for displaced and refugee young people at the secondary level in places like Dadaab Refugee Camp (see Focus: Strengthening Secondary Education for Refugees and Displaced Youth).[383] Given high per-student costs and the need for sufficient administrative capacity, those programs have generally not scaled to the extent needed to reach the large numbers of youth who are out of school or who are falling behind within the system.

Despite those challenges, some alternative, accelerated, and skills-oriented programs have been scaled at a national level. Examples of several such programs can be found across the continent. Those have been well-received and have successfully reached the most vulnerable groups on a national scale in Sierra Leone,[384] Ghana,[385] and Liberia.[386] Malawi's National Adult Literacy Program is another example of an alternative program at scale that targets out-of-school youth over the age of 15 and adults who have not attended school and gives them a second chance to acquire basic education.[387] In Mauritius, the Extended Programme has been specially designed for youth who have moved to grade 7 but did not attain the required standard at the end of grade 6. Through a more gradual learning program, those students pursue the same curriculum as other students for grades 7 to 9 and take the new National Certificate of Education at the end of the basic education cycle.[388] Creative and well designed, the program reached 3,291 grade 7 students nationwide in 2018, a fairly large number given that there are just over 108,000 students in the country's seven grades of secondary school.[389] In the Republic of South Sudan, AEPs provided basic education to those who missed the opportunity during the civil war and are part of a broader alternative education system that reaches more than 165,000 students (mostly aged 12–18), roughly equal to the number of grade 4 students in primary schools nationwide.[390]



Norbert Agola teaches in class as part of a Mastercard Foundation partnership with STiR Education in Uganda.

BOX 4.2
PROMISING PRACTICE: LIBERIA'S ADULT AND YOUTH LITERACY PROGRAMME[391]

Liberia's Adult and Youth Literacy Programme has operated since 2006. The Liberian-based Alfalit organization, in collaboration with the Ministry of Education and other education stakeholders, has established teaching and learning centres in 76 locations in five of the country's fifteen counties, reaching 65,000 learners since inception (85 percent of whom are female). Tailored to adults and youth who are out of school, the program uses culturally relevant learning materials with an emphasis on civics, health, human rights, and entrepreneurship, as well as 21st-century skills. Alfalit trains a network of volunteer teachers and facilitators in cooperation with the Ministry of Education, with facilitators chosen from the local community. The Adult and Youth Literacy Programme offers learners three nine-month terms (March to November), with 25 learners per class studying for two hours, three times per week. In the first year, learners focus on literacy (using a phonics-based approach and specialized learning materials) as well as numeracy. During the second year, learners achieve the equivalent of a grade 4 education, and after the third year, they reach the equivalent of a grade 6 education, adapted to local contexts and using simplified civics, history, and geography texts and materials developed by Alfalit International. In 2010, USAID and other funders expanded the program to six additional counties. Seventy-five percent of learners completing the program achieved literacy.

A student in class in Senegal as part of the Mastercard Foundation partnership with Education Development Centre, Inc.

4.2.2 LEVERAGING TECHNOLOGY

Technology can facilitate flexibility in education systems by offering new mechanisms to deliver learning. Blended learning programs, for example, offer a combination of online course content and in-classroom instruction.[392] Blended learning can help to maximize teacher time and help address quality challenges in contexts with overcrowding or teacher absenteeism. It can also allow for more personalized content delivery, which is beneficial in classroom contexts where over-aging is prevalent and a teacher must address a wide array of learning levels. Mobile platforms offer enormous potential for personalizing learning. Eneza Education offers lesson review, quizzing, and tailored learning materials via basic feature mobile phones for over six million learners in Kenya, Ghana, and Côte d'Ivoire.[393] Gamification also holds promise. Proponents of gamification argue that it offers opportunities to develop 21st-century skills such as communication and teamwork. Some evidence suggests games have the potential to promote learning in science, mathematics, and a second language, but more research is needed to substantiate those results.[394]

While new technology offers many promising opportunities to deliver education in more flexible, accessible ways, inequities in access to technology limit that potential. The digital divide in Sub-Saharan Africa, as elsewhere, transects geography, gender, economics, demography, ability, and pedagogy. Burns et al. describe its various guises:

"It is a digital equity divide; students in secondary schools in Sub-Saharan Africa continue to have less access to technology than secondary school students in the rest of the globe. It is a regional divide between parts of Africa beset by conflict and crisis — northern Nigeria, Somalia, South Sudan, northern Mali, the DRC — and areas without conflict. It is an urban-rural divide. It is an economic divide between students in government and private schools. It is a home-school divide, whereby students without home internet access or a computer lack access to the educational content and resources. The biggest divide may be between those students who have access to teachers with sufficient digital, pedagogical, and content knowledge to create meaningful and engaging learning activities via technology, and those who do not."[395]

Despite those challenges, there is a wide range of actors involved in education technology, working in innovative ways to reach excluded groups. Some of the main approaches being used include educational broadcast radio and television, learning centres that provide internet access in rural areas, and tablets and training at the school level.[396] For example, Botswana Television offers daily educational programming, reaching 90 percent of the country through its terrestrial transmitter and 100 percent through satellite.[397] Samsung and UNESCO have partnered with Kenya, Tanzania, and South Africa to help set up mobile solar-powered computer laboratories to connect rural schools in Sub-Saharan Africa.

It is important that policymakers take a problem-centred approach, and, as with any innovation, take the time to pilot, iterate, and adapt before applying the solution at scale.

Offline education solutions to address the lack of (affordable) internet are on the rise. Instant Schools is a free digital learning platform with no data charges for anyone on the Vodafone/Vodacom network. Available in DR Congo, Tanzania, Ghana, and South Africa (where it is known as "eSchool"), Instant Schools hosts quality digital educational content in local languages to reach over 750,000 learners. Learning Equality, a U.S.-based non-profit organization, has developed two open-source platforms, Kolibri and KA Lite. Both were designed for use in low-resource and low-connectivity contexts, providing offline access to a curated library of open-licensed educational content with tools for pedagogical support.

The private education technology sector in Sub-Saharan Africa continues to grow. The educational technology sector is not present in all countries, but there are promising patterns. For example, educational technology hubs are growing in many countries like Nigeria, Kenya, South Africa, Rwanda, and Ghana.[398] Injini, a South Africa-based educational technology incubator, has, for example, funded and provided management and technical assistance to educational technology start-ups in South Africa, Kenya, Tanzania, South Sudan, Ethiopia, and Nigeria.

The application of technology in the education sector is a promising area of innovation. Given the plethora of developments in that space, it is important that policymakers take a problem-centred approach, and, as with any innovation, take the time to pilot, iterate, and adapt before applying the solution at scale. It is also important for Ministries of Education to work with other areas of government to continue to improve the enabling environment for the use of technology in education. That includes, for example, infrastructure investments in electricity, safe storage facilities, and network connectivity. It also entails investments in teacher training to ensure a foundational understanding of how to utilize technology as a teaching tool.

4.2.3 THE ROLE OF PRIVATE AND OTHER NON-STATE ACTORS

Non-state actors have an important role to play in providing expanded and more flexible general secondary education and TVET due to their potential to experiment and innovate. The recent growth of non-state provision of secondary education and public-private partnerships (PPPs) in Sub-Saharan Africa is expected to continue. Non-state actors can help expand access to secondary education and make it more adaptive and responsive to youth's needs. Non-state actors often play more than just a complementary role in the delivery of secondary education in Sub-Saharan Africa. One in five youth in Sub-Saharan Africa is enrolled in a school provided by a non-state actor, whether a for-profit business, NGO, or faith-based organization. That share is expected to grow to one in four by 2021.[399]

Non-state actors can help expand access to secondary education and make it more adaptive and responsive to youth's needs.

The term "non-state" encompasses a host of ownership and provision structures, ranging from minimal to deeply engaged state involvement.[400] Models include commercial private school chains, affordable or low-fee private schools, community schools, faith-based schools, NGO schools/learning centres, education service contracts, voucher systems, private tutoring, and more.[401] Involvement of non-state actors in secondary education is diverse and can be grouped into three main functions. The first is expansion of secondary education provision, either through NGO, religious, or private schooling, or public-private partnership arrangements. The second role is in providing ancillary services — complementing other actors in the education system and helping to resolve capacity gaps. The third is developing and piloting innovations in a range of areas, including pedagogy, school management, and support for teaching. Each of the ways that non-state actors can be involved in education offers different potential for strengthened links between secondary education and the future of work.

Direct provision of education through private actors, while growing across Sub-Saharan Africa, is controversial. Given the limited capacity of secondary education systems in many Sub-Saharan African countries, there is broad interest in the potential of the private sector to fill gaps. However, that growth in private-sector involvement has been accompanied by active debate about the relative effectiveness and efficiency of public versus private schools, and of public-private partnerships.[402] In theory, private actors, both for profit and non-profit, may have the potential to deliver market-relevant skills and curricula to students transitioning to work in both the formal and informal sectors, particularly in the case of TVET, at a lower cost and with greater efficiency, quality, and relevance than government schools alone.[403]

As such, some Sub-Saharan African governments are already exploring partnerships with the private sector to boost the quality and capacity of secondary schools. In Uganda, Promoting Equality in African Schools, a non-profit social enterprise, previously in combination with Absolute Return for Kids, operates a network of secondary schools that are financially supported by the Ugandan government, albeit to a decreasing extent. These schools have enabled more adolescents to access quality secondary education in a country where 27 percent of adolescents of lower secondary age are not in school.[404] There are also examples of partnership arrangements where governments provide children with school vouchers to attend private schools of their choice (as in Mali) or where public schools are managed privately (e.g., Burkina Faso, Côte d'Ivoire, and Guinea).[405]

Students in science class in Rwanda as part of the Mastercard Foundation Leaders in Teaching program.

However, evidence on learning outcomes, efficiency, and equity through private provision is mixed, and there are related questions around the potential for scale. Moreover, much of the evidence regarding learning outcomes in non-state schools is focused on the primary rather than the secondary level.[406] Strong notes of caution emerge in the World Development Report's recent finding that "there is no consistent evidence that private schools deliver better learning outcomes than public schools."[407] There is also concern that public-private partnerships also do not show clear learning gains, with a recent review finding that any outperformance over public counterparts is largely due to those partnerships enrolling more capable students.[408] A study on private schooling in East Africa in Kenya, Tanzania, and Uganda further highlights the wealth gaps in relation to private schooling and shows a lack of evidence on consistent learning gains for the poorest children.[409]

Non-state actors need to be clearly regulated and monitored by the public sector to ensure equity and quality.

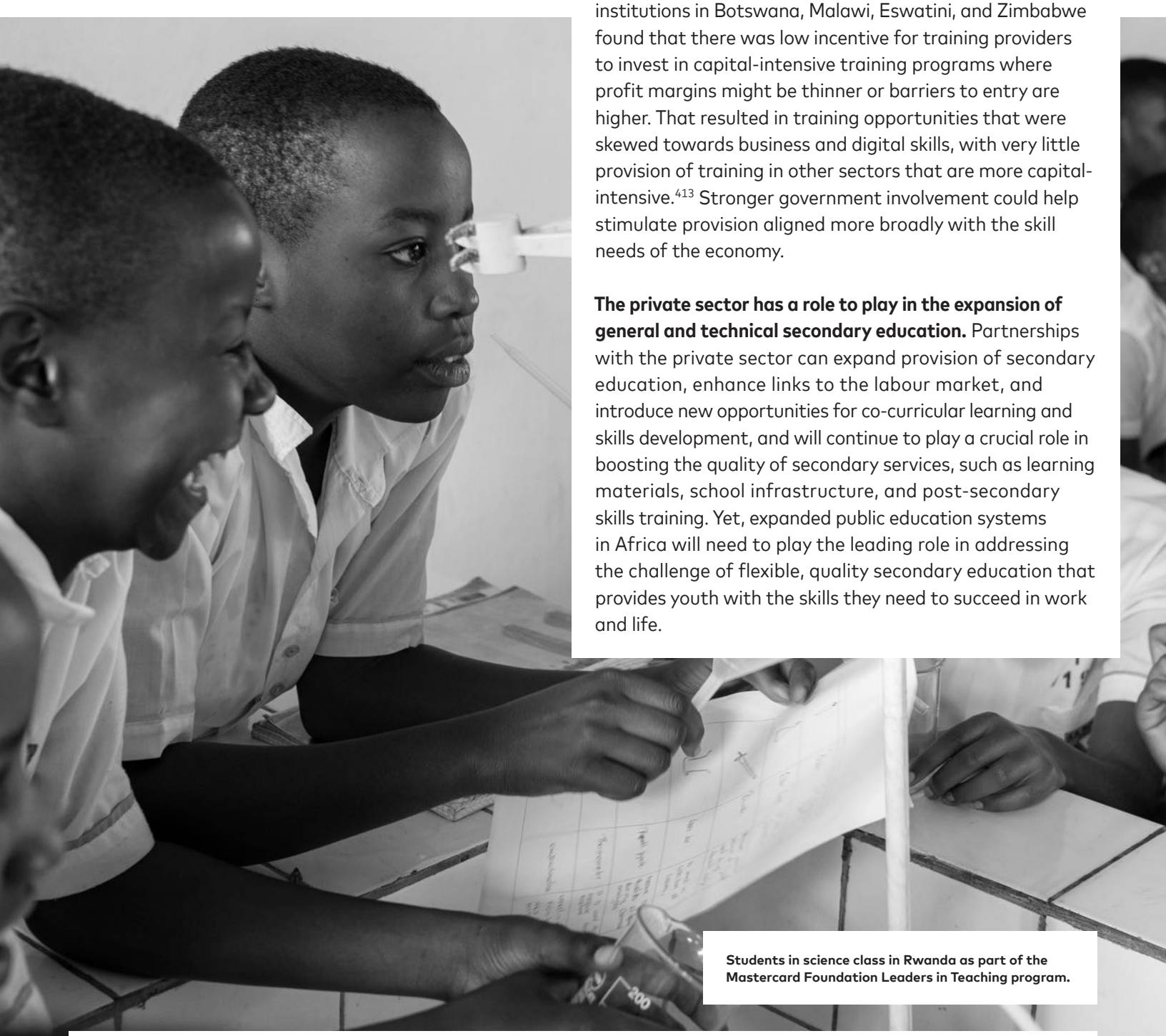
Non-state actors, including private actors, can be important partners in demonstrating and delivering innovation and adaptive secondary education that both provides flexibility and better links young people to work opportunities.[410] Non-state actors can play an important role in piloting and scaling programs to incorporate skills for entrepreneurship and work-readiness. Successful models piloted by those actors can be incorporated into formal systems or expanded with government resources. An example is the Akazi Kanoze work-readiness program, piloted by Education Development Centre in Rwanda and profiled in Chapter Two. Aspects of that program's curricula were then incorporated by the government into all of Rwanda's secondary schools.

Non-state actors, including private institutions and public-private partnerships, can contribute to improving access to and quality of TVET. Public-private partnerships can play at least three important roles in relation to TVET: enhancing policy and curricula to include skills relevant to current and projected labour market needs: expanding provision, through construction and outfitting of facilities or by offering more formalized training and apprenticeship provision; and offering structured work placements to support students to learn and practise relevant skills in a workplace setting. As small private firms are major providers of informal apprenticeships, working with those firms to formalize training and enable trainees to get accreditation for their skills would be another promising form of public-private partnership. In Senegal, the private sector has played an important role in the expansion of TVET provision. As illustrated in the Senegal case study in Chapter Five, between 2013 and 2015, 82 of 88 new TVET institutions were built using private finance.[411]

Many studies of both secondary and tertiary-level TVET have found low qualification levels among instructors and poor linkages to the private sector. That implies a role for private actors in helping to develop the quality of instructors' technical skills through training and exposure to up-to-date equipment and processes.[412] Yet, trainers from private companies often lack pedagogical training, pointing to a further potential role for partnerships between public teacher training institutions and private actors.

While private and other non-state actors have an important role to play in expanding access to secondary education and relevant skills training, the public sector must not relinquish its leading role. Non-state actors need to be clearly regulated and monitored by the public sector to ensure equity and quality. Government working together with private actors can also ensure that the education system as a whole is relevant to national economic goals. For example, a study of private training institutions in Botswana, Malawi, Eswatini, and Zimbabwe found that there was low incentive for training providers to invest in capital-intensive training programs where profit margins might be thinner or barriers to entry are higher. That resulted in training opportunities that were skewed towards business and digital skills, with very little provision of training in other sectors that are more capital-intensive.[413] Stronger government involvement could help stimulate provision aligned more broadly with the skill needs of the economy.

The private sector has a role to play in the expansion of general and technical secondary education. Partnerships with the private sector can expand provision of secondary education, enhance links to the labour market, and introduce new opportunities for co-curricular learning and skills development, and will continue to play a crucial role in boosting the quality of secondary services, such as learning materials, school infrastructure, and post-secondary skills training. Yet, expanded public education systems in Africa will need to play the leading role in addressing the challenge of flexible, quality secondary education that provides youth with the skills they need to succeed in work and life.



Students in science class in Rwanda as part of the Mastercard Foundation Leaders in Teaching program.

A student in science class in Kenya as part of Mastercard Foundation Scholars Program, Equity Group Foundation Wings to Fly Program

BOX 4.3

POLICY POINTERS ON NON-STATE PROVISION AND PUBLIC-PRIVATE PARTNERSHIPS AS PART OF SECONDARY EDUCATION[414]

- Governments should develop meaningful and coherent policies and strategies that recognize the important role of non-state actors while providing a robust regulatory framework.
- Make roles and responsibilities of education providers clear and transparent, to create an environment of mutual trust and accountability.
- Promote long-term sustainability to ensure that non-state programs have longevity and do not come to abrupt ends due to a lack of financial planning.
- Establish a formal mechanism of dialogue to ensure grievances can be heard.
- Foster a climate of innovation and knowledge exchange across the public and private sector.
- Engage key non-state and private stakeholders throughout the policy process, bearing in mind commercial (e.g., for-profit providers) or institutional interests (e.g., faith-based organizations).
- Enforce adequate regulation to ensure that any work done by students during job placements, apprenticeships, or within TVET programs is within labour laws, has pedagogical value, is not exploitative, and does not bind youth to a particular company.
- Encourage an environment of social accountability whereby both governments and private providers play a role in reaching those whose education needs are yet to be met.
- Ensure non-state provider programs offer links to relevant national qualifications frameworks and/or clear pathways to work.

4.2.4 STRENGTHEN PATHWAYS BETWEEN TVET, GENERAL SECONDARY, AND POST-SECONDARY EDUCATION

Few pathways, if any, are available between TVET and general education in most Sub-Saharan African countries. Once a student has entered a technical track, during or after lower secondary school, there is generally little opportunity for them to re-enter general secondary school or gain entrance to a non-technical university. In some countries, pathways between secondary, post-secondary, and tertiary TVET itself are also not formalized; rather, they are determined at the institutional level.

The lack of clear pathways between TVET and general secondary education, and technical and academic higher education, contributes to the stigmatization of TVET. Technical and vocational education is often perceived as a "dead end" by parents and students. UNESCO stresses the importance of demonstrating through clear policies that TVET, in addition to general education, can open pathways to higher education and lifelong learning.[415] Pathways that allow students to move between general and technical education have increased the status of TVET in countries such as Canada, Indonesia, the Republic of Korea, Singapore, and the United States.[416] According to UNESCO:

> *"Member States should develop pathways and facilitate transitions between secondary, post-secondary and tertiary education including flexible admission procedures and guidance, credit accumulation and transfer, bridging programs and equivalency schemes that are recognized and accredited by relevant authorities."*[417]

Creating such pathways serves multiple goals that can help a country both increase labour productivity and create efficiencies in the education system. Benefits include:

- increasing the attractiveness of TVET;
- reducing inequality by opening access to higher education to a broader population;
- meeting economic demand for higher-level skills;
- supporting lifelong learning; and
- removing artificial barriers, such as requirements to repeat course material, that raise the cost of education.[418]

UNESCO recommends that pathways into tertiary education be created for three sets of entrants for whom such options are generally not available: graduates of initial TVET training (usually at the secondary level and known by UNESCO's classification framework as ISCED 2–3); graduates of post-secondary TVET (ISCED 4–5); and workers in both the informal and formal economy. Pathways for the latter group are important for young adults who may have dropped out of school or need upskilling.[419] As noted below, modular competency-based training and accreditation approaches and national qualifications frameworks can help facilitate those pathways.

BOX 4.3
PROMISING PRACTICE: FLEXIBLE PATHWAYS BETWEEN TVET AND UNIVERSITY IN SOUTH AFRICA

South Africa recently introduced pathways between TVET and university, with the aim of improving the status of TVET and addressing high levels of youth unemployment. In its secondary education reform initiative announced in 2018, South Africa adapted requirements to enter university so that technical subjects are not disadvantaged. New examination guidelines have been issued for technical subjects that make them more academically demanding. To push for higher status for the technical subjects, the education sector strengthened ties with industry. Partners include the Sector Education and Training Authorities and several automobile manufacturers.[420]

4.2.5 ACCREDITATION, RECOGNITION OF PRIOR LEARNING, AND NATIONAL QUALIFICATIONS FRAMEWORKS

Formal recognition and accreditation of all skills, including prior learning, facilitates labour mobility and increases the returns to skills, benefitting both youth and the economy.[421] Trends of digitalization and automation, as well as environmental challenges such as climate change and the reality of globalization, mean that a country's training and skills systems must be nimble and flexible to provide continuous opportunities for retraining and upskilling to serve the varying needs of youth and adults and to prepare them for a dynamic labour market.

Systematic recognition of prior learning — including learning gained through informal apprenticeships — could result in benefits to labour markets, formal education and training, young people's earnings, and self-esteem.

Recognition of informal training and apprenticeships is important, given that they are the most prevalent form of training for youth in Africa.[422] Informal apprenticeships and similar arrangements often require that young people work over extended periods of time with poor remuneration. It is often the case that the training acquired through service is the main form of payment, sometimes with the promise of future employment. Such training holds great potential to meet demand among youth, yet traditional, informal apprenticeships and training are highly fragmented and vary in quality, with no coherent overall approach to monitoring, certification, or accreditation.[423] Such training is embedded in local culture and traditions, and governed based on reputation and social sanctions.[424] Failing to formally recognize such training can impede employment and labour mobility for youth. Systematic recognition of prior learning — including learning gained through informal apprenticeships — could result in benefits to labour markets, formal education and training, young people's earnings, and self-esteem.[425] The ILO finds that, "apprentices in micro- and small businesses learn technical skills from master craftspeople and practitioners at the workplace and are inducted into a business culture and a business network which makes it easier for them to find jobs or start businesses."[426]

Informal apprenticeships and training could be improved with the help of both private actors and the public sector. The private sector — including associations of micro- and small enterprises in the informal sector — should increasingly facilitate course upgrading, overseeing apprenticeship training, issuing certificates, or participating in trades testing for the informal sector. Given the strong demand for informal training, governments should consider offering more innovative ways of financing skills development, such as using voucher systems as has been piloted in Kenya.[427] The public sector should be responsible for quality control and could strengthen the content and signalling effect of traditional apprenticeships by standardizing certifications.[428]

National qualifications frameworks (NQFs) can support a more modular approach to education and skills development at the secondary level. By mapping and benchmarking skills acquired, national qualifications frameworks have the potential to enable youth to move between informal training and formal education. Through operationalizing a competency-based curriculum (see Chapter Two), NQFs allow youth to train for and be accredited in the specific skills required at a given point in their education journey, when the time and financial resources are available to them, and such that they can build up their portfolio of credentials over time. By incorporating a recognition of prior learning system, these frameworks can also enable validation of the technical skills of informal sector workers, which can boost their job opportunities and chances to gain increased remuneration, as well as their options to undertake further education and training.[429]

BOX 4.5

NATIONAL QUALIFICATIONS FRAMEWORKS: A DEFINITION[430]

According to the International Labour Organization, a national qualifications framework is:

"[a]n instrument for the development, classification and recognition of skills, knowledge and competencies along a continuum of agreed levels. It is a way of structuring existing and new qualifications, which are defined by learning outcomes, i.e., clear statements of what the learner must know or be able to do whether learned in a classroom, on-the-job, or less formally. The Qualifications Framework indicates the comparability of different qualifications and how one can progress from one level to another, within and across occupations or industrial sectors (and even across vocational and academic fields if the NQF is designed to include both vocational and academic qualifications in a single framework)."[431]

By using a learning outcomes approach, NQFs describe what the holder of a certificate or diploma is expected to know, understand, and be able to do. NQFs can thus help ensure that education and training institutions are open to one another, and that learners can move more easily between those institutions and sectors.

Creating a national qualifications framework is a way of ensuring that all qualifications are formally related to each other, instead of operating completely separately. However, poor coordination and overlapping authority between government agencies, disempowered qualifications authorities, and conflicts between laws and regulations have been observed in the implementation of those frameworks and can diminish their effectiveness. NQFs themselves, therefore, are not sufficient to ensure pathways between different qualifications.[432]

A study of NQFs in Africa undertaken in 2015 found that 12 countries already had lifelong learning policies. Additionally, The Gambia, Ghana, Kenya, and Namibia were found to be developing policies to integrate all forms of lifelong learning or validate and accredit informal and non-formal modes of learning.[433] That study found that Botswana and South Africa's NQFs are the most advanced in terms of recognizing, validating, and accrediting prior learning; both those countries, as well as Benin, have also integrated vocational qualifications into their NQFs. Critical to that is an agreed form of measurement that matches levels of skills acquired to the levels and curricula of the formal school domain. That would enable individuals to transition more easily between systems.

African NQFs are similar to efforts in many middle- and high-income countries, where national skills systems and frameworks for lifelong learning have been prevalent for several years. Among middle-income countries, India finalized an NQF in 2013 and launched a public-private, partnership-driven national skills development initiative in 2015 — among the largest and most complex of its kind globally.[434] Most OECD and many other countries also now have lifelong learning strategies that are linked to a common definition of learning and skills for employability.[435] Additionally, most high-income countries are now measuring literacy and other skills in the workforce. For example, the Programme for the International Assessment of Adult Competencies has been used in 40 countries worldwide (including most OECD countries) since 2011 to measure the key cognitive and workplace skills needed for individuals to participate in society and to promote economic prosperity.[436]

Regional qualifications frameworks are being developed across sub-regions in Africa, focusing on recognition of qualifications across borders. The most developed such regional framework is that of the Southern African Development Community, whose regional qualifications framework includes 10 levels and was adopted in 2011 and "revived" in 2016.[437] The East African Community is working on a similar effort. Those approaches are similar to that of the European Union, which created the European Qualifications Framework for Lifelong Learning, adopted in 2008. Such regional skills qualifications frameworks can promote labour mobility and prevent "brain waste" that occurs when prior skills training and qualifications are not recognized.

Students at secondary school as part of a Mastercard Foundation partnership with STiR Education in Uganda.

4.3 RECOMMENDED ACTIONS

- **Establish and formalize alternative pathways between non-formal and formal education with portable accreditation to increase access for out-of-school youth.** Secondary systems should be increasingly structured in a flexible way to offer large numbers of youth alternative education pathways that allow for re-entry into formal schooling, including young women excluded due to pregnancy.
- **Scale successful and equitable alternative education and training programs, including accelerated education programs and those provided by non-state actors, through links to the formal education system.** These linkages can both build access to education for a greater number of marginalized youth and offer ways to incorporate a wider range of skills into more innovative curricula.
- **Facilitate re-entry to school for adolescent mothers** by removing policies that prevent or deter re-entry; providing social protection transfers that enable young parents to study; helping meet the costs of their children; encouraging adolescent fathers to share responsibility for care of their children; allowing time off school for breastfeeding or taking young children to clinics; and, where feasible, supporting nursery provision close to school sites.
- **Create an effective regulatory environment to harness the potential of non-state actors to expand provision of high-quality secondary education and TVET and ancillary services.** The scale of the challenge of expanding access to and quality of secondary education and TVET is so great that governments will need to leverage the strengths of non-state actors including the private sector, faith-based education providers, and non-governmental organizations. Governments must, however, remain central and lead by creating a strong regulatory environment that ensures equitable access and quality.

- **Create pathways between secondary-level general education, TVET, and post-secondary and tertiary education.** Governments and private institutions should create flexible admissions procedures, guidance, credit transfer procedures, bridging programs, and equivalency mechanisms that are recognized and accredited by the relevant authorities to formalize pathways between general and TVET education at all levels. That will also improve the status of TVET.
- **Create national skills strategies and/or national qualifications frameworks (NQFs) that map available training and qualifications.** NQFs can facilitate a more modular approach to education and training and support pathways between levels of education and the labour market. They can also help to recognize informal training and apprenticeships and create pathways into formal education and employment.

A student in class in Senegal as part of the Mastercard Foundation partnership with Education Development Centre, Inc.

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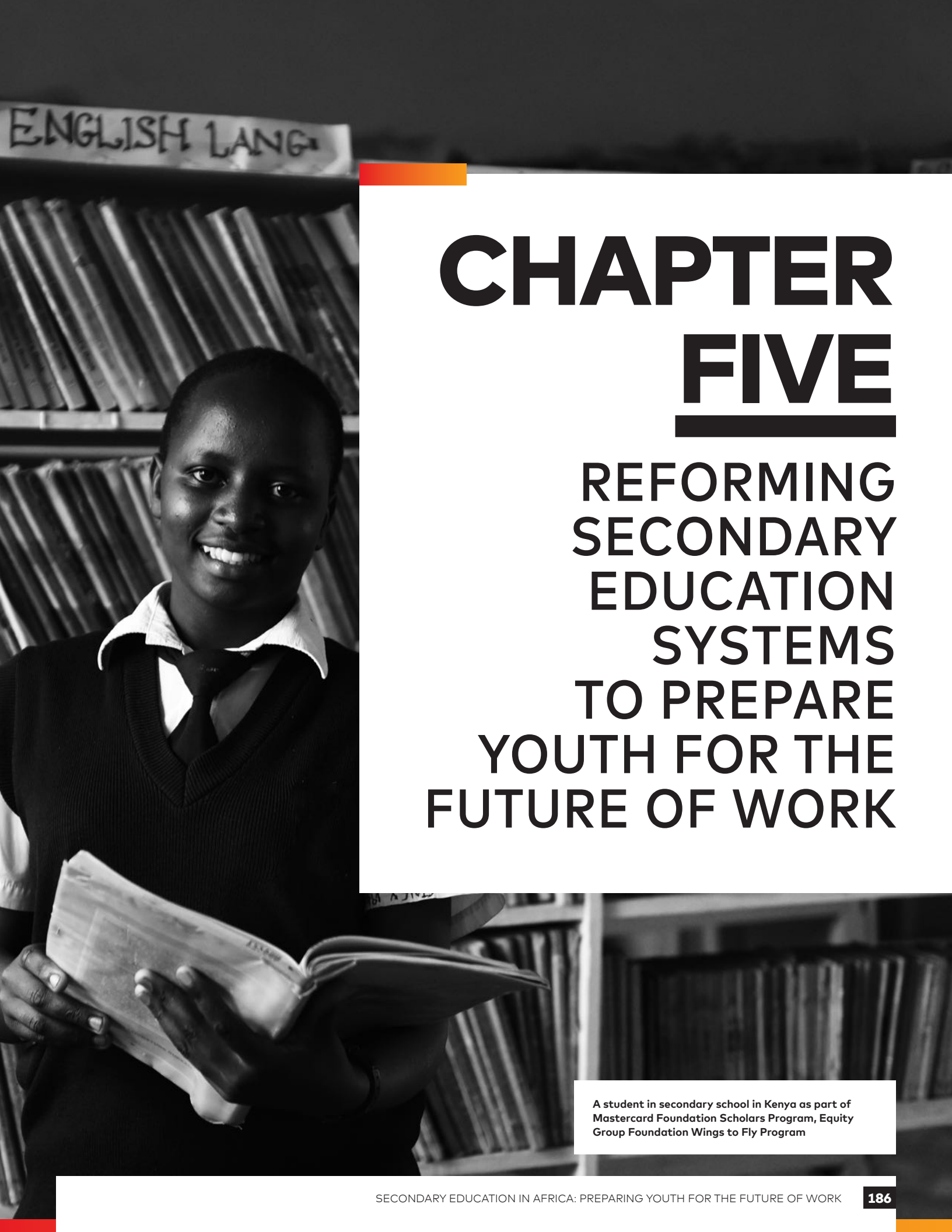


CHAPTER FIVE

REFORMING SECONDARY EDUCATION SYSTEMS TO PREPARE YOUTH FOR THE FUTURE OF WORK

A student in secondary school in Kenya as part of Mastercard Foundation Scholars Program, Equity Group Foundation Wings to Fly Program

KEY TAKEAWAYS:

- **The success of policies and innovations discussed throughout this report will depend on the capacity of education systems to implement them.** There are numerous examples of African countries that have begun impressive reforms that are already bearing fruit in the form of improved access, completion, and equity at the secondary level. Yet, systems-level reform is a decades-long process and requires commitment from the highest levels.
- **There are six factors that have proven critical in promoting system reform:** vision and political will; broad-based buy-in and coalitions for reform; attention to equity gaps; effective partnerships; data-informed decision-making; and clear roles and accountability for outcomes.
- **Given the scale of the challenge of reforming secondary education systems to prepare all youth for the future of work, greater innovation will be needed.** Governments have an important role in developing an enabling environment for innovation. That work includes creating policies that articulate buy-in for innovation at the highest levels, developing the capacity to pilot and evaluate within ministries, and forging stronger linkages between non-state innovators and governments to promote adoption and scaling of successful practices.

A student in secondary school in Kenya as part of Mastercard Foundation Scholars Program, Equity Group Foundation Wings to Fly Program

5.1 STRENGTHENING INSTITUTIONAL CAPACITY FOR REFORM AND INNOVATION

Previous chapters in this report have outlined a number of actions that can help to ensure that secondary education better delivers the skills and competencies needed to prepare youth for the future of work. The success of policies and innovations discussed throughout this report will depend on the capacity of education systems to implement them. Significant reform and innovation will be needed to achieve that goal.

Institutional capacity is central to successful reform, yet it is a challenge for education systems worldwide. A lack of institutional capacity occurs when institutions (e.g., ministries of education, sub-national education authorities, or schools) do not have the resources (e.g., personnel, skills, processes, materials) necessary for them to fulfil their functions.

Reforms may fail and policies may not be carried out as designed if those that are implementing them do not have the resources or incentives they need to do so. For example, the implementation of a new secondary education curriculum may fail if schools do not receive the necessary learning materials or do not have enough teachers, or if the teachers do not have the skills and training needed to deliver the new materials. Equally, implementation may fail if a ministry of education cannot collect information to monitor the implementation process or is unable to direct resources and capacity to areas where needs are greatest. Finally, actors are unlikely to make changes if they lack incentives to do so, such as being given direct responsibility and being held accountable for outcomes.

There is a significant and growing body of knowledge on the elements of effective education systems.[438] A review of case studies and evidence from that literature indicates that several practices — in addition to adequate financing — are helpful for facilitating successful reform and ensuring effective systems.

Six practices associated with effective reform:

1. **Vision and political will** at the highest levels, as evidenced through clear policy frameworks and the provision of the resources needed for implementation;

2. Broad-based buy-in and **coalitions for reform**;

3. Focused attention on **addressing equity gaps**;

4. **Effective partnerships** with actors such as the private sector, civil society, and regional and international institutions;

5. **Data and the processes to use** it to inform decision-making; and

6. Clear roles and responsibilities and the **ability to hold actors accountable for outcomes**.

Although there is not necessarily a consensus on the process for implementing all of those practices, we know that developing effective systems is a long-term endeavour without quick fixes. Senegal and Sierra Leone, profiled below, are examples of countries that have achieved sustained positive reforms to their secondary education systems, despite stark challenges.

Students celebrate graduating from secondary school in Uganda as part of Mastercard Foundation Scholars Program partnership with BRAC Uganda.

5.2 FACILITATING REFORM: WHAT WE KNOW FROM THE EVIDENCE

5.2.1 A SHARED VISION, POLITICAL WILL, AND CLEAR POLICIES

Vision for reform must be accompanied by political will to champion implementation. Some of the countries that have made the greatest strides, such as Singapore and Vietnam, have done so because governments have made education a key national priority over time. Many African education sector plans and national development plans express aspiration for education to better prepare young people for work and to build skills that contribute to the development of knowledge economies. The degree to which those vision statements are translated into policies, plans, and actual activities depends in part on how much genuine support there is for them among a range of stakeholders, including top political leaders as well as constituencies such as teachers' unions and employers.

Experience suggests that is easier to implement reforms that are politically popular. It is often easier to gain support for education reforms that benefit a large share of the population, such as expanding access or lowering costs for parents. Those that involve behavioural change and are more time-intensive, such as requiring teachers to change the way they teach or redistributing resources in a way that may appear to prioritize some groups at the expense of others, are more difficult to implement.[439] For those reasons, long-term political vision and will at the highest levels are critical for the implementation of reforms that are slower to pay off and have differential impacts across society.

Realizing a vision of secondary education that better prepares young people for the changing world of work requires clear and realistic plans. Few African countries have developed national skills strategies, policies, or frameworks that seek to unify education, training, and broader economic development strategies.[440] Where unified frameworks are lacking, the process of developing a national skills strategy can be a means of galvanizing attention and action to the need for education reforms to boost work-relevant skills.

African countries have started to integrate a greater emphasis on skills and work-readiness into national education sector strategies and plans. Analysis of those plans finds huge variation, from generalized statements about the importance of 21st-century or work-relevant skills, to clear policies for inclusion of entrepreneurship and technical subjects, as in The Gambia and Namibia, and detailed curriculum and assessment guidance on competency-oriented approaches, as in Rwanda (see Chapter Two).[441] Those detailed plans are exceptions, and in most countries, the ambitions and priorities set out in Education Sector Plans have only partially been embedded in secondary education policies, curricula, and goals. Equally, the extent to which those plans explicitly discuss linkages to formal post-school education, training, and informal training such as apprenticeships is variable.

Typically, skills development strategies focus on the post-secondary level or on out-of-school young people, and pay limited attention to the role of secondary education in skills for work.

National skills strategies can help address gaps in provision, duplication, or different standards among different types of education providers. With the anticipation of an increased role for a wider range of providers to offer flexible secondary education and skills development options, unifying skills strategies could become a crucial means to bring a skills focus firmly to secondary education and to better integrate secondary education, TVET, and informal skills development, such as via apprenticeships.[442] Typically, skills development strategies focus on the post-secondary level or on out-of-school young people, and pay limited attention to the role of secondary education in skills for work.[443] South Africa's National Skills Development Strategy provides an interesting example of what that looks like in practice. National qualifications frameworks, another alternative for promoting flexible pathways for skills acquisition, are discussed in Chapter Four.

5.2.2 BUILDING COALITIONS FOR REFORM

Transforming secondary education to prepare young people for the future of work will involve a broad range of reforms, some likely more politically popular than others. Those dynamics will play out differently in different countries, according to the overall political discourse, the economic context, and the current nature of the education system, among other factors. Reconceiving secondary education as a platform for work could itself be considered a controversial idea for some stakeholders. As the Senegal case study (Section 5.2) shows, parents, students, teachers, and education officials all consider the secondary education system to be largely a springboard to tertiary education and are thus skeptical of efforts to expand TVET provision or to strengthen the development of competencies that are not part of exit examinationst. By contrast, consultations conducted with young people, teachers, and employers for this report found a strong positive reaction to the idea of more work-relevant education.

Overall, there is no single "best practice" that ensures buy-in to reforms; rather, a combination of efforts may be effective. Gaining traction for reforms will require a multi-pronged approach and could include: inspired and sustained high-level leadership from both senior politicians and civil servants; commitment to sustaining a clearly defined set of reforms (rather than changing course with changes of political leadership or donor fashions); engaging stakeholders in reform processes through initial policy dialogue, national skills strategies, and periodic review; and addressing capacity and resourcing obstacles.[444] Active engagement from stakeholders, who can have a significant influence on whether reform takes root, such as teachers' unions, should be prioritized in design and implementation of reforms from the outset. Finally, capacity and resourcing are important not only to enable implementation but also to avoid reforms being derailed by broader grievances — for example, low levels of pay.[445]

TABLE 5.1
STAKEHOLDERS AND EDUCATION REFORM: SUPPORTERS, DETRACTORS, AND BUILDING SUPPORT FOR CHANGE

	POTENTIAL COALITIONS FOR REFORM		
REFORM AREA	**LIKELY SUPPORTERS**	**POTENTIAL DETRACTORS**	**POSSIBLE APPROACHES**
Increase public financing for secondary education	Education sector Parents International donors Civil society	Any stakeholder who may pay: taxpayers; Ministry of Finance; international lenders Various competing demands for resources within and between sectors Other levels of education (if funding is reallocated)	Gain support for strengthening tax base by demonstrating longer-term socioeconomic gains. More education sector and budget planning, reflecting priorities and needs, and focusing on greater equity. Improve efficiency/lower rent-seeking by improving transparency in allocation of resources and monitoring service delivery.
Increase equitability of finance and access to secondary education	General public usually supports fee-free secondary education Generally electorally popular, thus increasingly adopted by many political parties	Any stakeholder negatively affected by reallocation of resources. (e.g., tertiary students; teachers deployed to rural areas) Grants/subsidies for specific groups (e.g., girls) can provoke backlash	Focus on equitable allocation of resources (e.g., teachers and capitation grants to low SES schools). Provide inducements to teach in rural areas. Lower the costs for poor households through targeted support, such as scholarships.
Improve the quality and relevance of general secondary education	Can gain high-level political support as part of efforts to modernize Parents and students often supportive of well-implemented reforms Employers usually supportive of reforms to improve foundational and work-readiness skills	Teachers and school leaders who consider new curricula or learner-centred pedagogies impractical or of lower quality Officials, teachers, students, and parents who believe reformed curricula (especially vocational elements) will reduce opportunities for tertiary study	Build a reform coalition that includes teachers through consultative processes around curriculum and pedagogical reform (e.g., Kenya). Build stronger demonstration models of "what works" and introduce coaching. Provide better evidence/monitor learning gains from good teaching. Work with professional associations to build culture of commitment to professional excellence. Ensure teachers' pay levels are commensurate with qualifications and experience; address underlying dissatisfactions that undermine commitment to implementing new curricula or pedagogies.
Reform teacher recruitment and education	Can have high-level political support and support of education officials	Can be controversial with teachers' unions, especially in contexts of low morale Teacher educators may resist change	Study tours/examples of effective reforms in low- and middle-income contexts. Training for teacher educators to build capacity and commitment to deliver reformed training programs effectively. Raise entry standards, extend courses, increase competency focus, and increase practical teaching elements to strengthen and align initial teacher training.
Restructure high-stakes examinations to increase competency focus	Parents and students may be suptportive if exams become less significant in determining progression to future study	Can be controversial with teachers and teachers' unions, especially in contexts of low morale Teacher educators may resist change	Share examples of effective competency-oriented assessment in other systems. Train teachers in assessment of competencies. As above, address causes of low morale. Introduce during system expansion when the role of exams is less important in allocating places.

Source: Adapted from Karen Mundy, "Education Reform, Implementation and Political Economy in African Secondary Education, Secondary Education in Africa Background Note" (Toronto: Mastercard Foundation, March 8, 2019).

5.2.3 A FOCUS ON CLOSING EQUITY GAPS

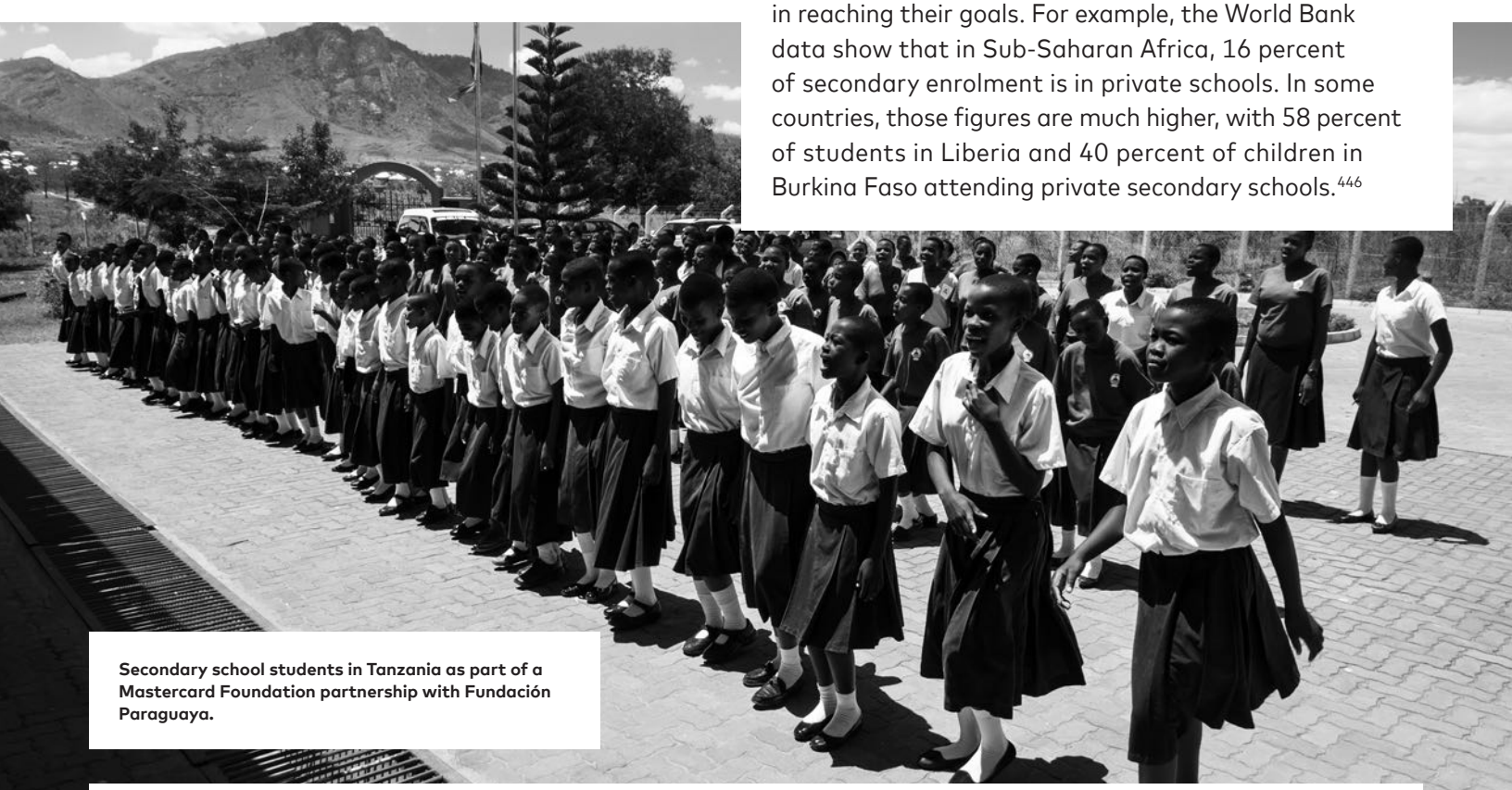
Attention to equity can be a powerful tool if included in education sector policies and strategies. Evidence-based analysis, usually at the district level, can be used to identify areas and populations of greatest need, and then used to target resources most effectively. As in the case of Sierra Leone, policies and resources can be focused on closing equity gaps in terms of gender, income, location, and other factors such as disability. Equity-based financing formulas and policies, such as targeting resources to under-resourced schools or low-income districts, and conditional cash transfers to the most in need, have shown to be highly effective and are explored in depth in Chapter Six.

Extending the promise of a quality, relevant secondary education to all is important for achieving both individual and economy-wide benefits of education and can aid in reform efforts. Societies that do not provide quality education to all cannot fully reach their human capital potential, and thus forego significant potential productivity improvements. Attention to equity is also important for building political support for reform. If constituencies such as rural populations, the poor, or ethnic minorities feel included in the promise of education and experience noticeable improvements in access and/or quality, they are more likely to support reforms and the governments that implement them.

5.2.4 BUILDING PARTNERSHIPS TO IMPLEMENT REFORMS

While governments are by far the largest funders of education, and necessarily set the vision and policy direction for education, they cannot manage reform alone. The challenge of building effective education systems capable of helping youth acquire the skills they need calls for partnerships across a wide range of actors. Such partnerships can increase political support for reform, while also bringing to education systems greater resources and expertise. Partnerships to help in implementation of reform can be developed by governments with private actors in education provision, employers, NGOs, and international donors and other constituents.

Alignment of national policies with global and regional development goals and frameworks can also facilitate partnerships and access to resources. Working towards common goals and targets set by the African Union, or in the Sustainable Development Goals, for example, can clarify objectives for all parties and contribute to preventing duplication of effort. The cases studied for this report, as well as the literature on reform, demonstrate that working with actors such as the private sector, NGOs, civil society, and regional and international institutions can be highly beneficial. The private sector is an important provider of education services and innovations that support governments in reaching their goals. For example, the World Bank data show that in Sub-Saharan Africa, 16 percent of secondary enrolment is in private schools. In some countries, those figures are much higher, with 58 percent of students in Liberia and 40 percent of children in Burkina Faso attending private secondary schools.[446]



Secondary school students in Tanzania as part of a Mastercard Foundation partnership with Fundación Paraguaya.

5.2.5 RELEVANT DATA AND THE CAPACITY TO UTILIZE IT

Without relevant data, education authorities are unable to measure progress. The use of timely, quality data, particularly learning data, should be a resource to help drive decision-making. The production of education data has improved across Sub-Saharan Africa in recent years and many ministries have now strengthened Educational Management Information Systems (EMIS). The spread of digital EMIS has the potential to enable more rapid analysis of progress, weaknesses, and bottlenecks.

Countries have begun to regularly report on indicators related to skills and learning under the SDG 4 monitoring framework (see Table 5.2). However, there are significant gaps within that framework, particularly in terms of comparable measures of critical skills and competencies for work such as 21st-century, technical, and entrepreneurship skills. More needs to be done to develop common approaches to understanding learner progress in those areas. Filling those gaps would provide a clearer picture of the development of relevant skills for work. Citizen-produced data, such as data derived from service scorecards or citizen-led learning assessments, can be a valuable complement.

TABLE 5.2
DATA TO UNDERSTAND PROGRESS IN PREPARING YOUNG PEOPLE FOR THE FUTURE OF WORK

	INDICATORS FOR SKILLS AND LEARNING
SDG indicators for skills and learning outcomes[447]	Proportion of children and young people (a) in grade 2 or 3; (b) at the end of primary education; and (c) at the end of lower secondary education achieving at least a minimum proficiency level in (i) reading and (ii) mathematics, by sex (Target 4.1.1) Participation rate of youth and adults in formal and non-formal education and training in the previous 12 months, by sex (Target 4.3.1) Proportion of youth (15–24) and adults (25+) achieving at least a fixed level of proficiency in functional (a) literacy and (b) numeracy skills, by sex (Target 4.6.1) Proportion of youth (15–24) and adults (25+) with information and communications technology (ICT) skills, by type of skill (Target 4.4.1) Data on the proportion of teachers at all levels who have received at least the minimum organized teacher training required for teaching at the relevant level in a given country, by sex (Target 4c.1) Data on the proportion of schools with access to the internet and computers for pedagogical purposes (Target 4a.1)
Key skills for work that lack indicators	21st-century skills — Some attempts to embed critical thinking and problem-solving in upper secondary exit exams, though a comprehensive approach is lacking.[448] No standardized measures for other skills, e.g., communication, leadership, empathy Technical skills — Data on percent of young people achieving TVET qualifications (in secondary or tertiary institutions) Entrepreneurship skills — Percent of young people passing lower or upper secondary business skills courses

Source: Authors and UNESCO-UIS, "SDG 4 Data Digest: How to Produce and Use the Global and Thematic Education Indicators" (Montreal: UNESCO Institute for Statistics, 2019).

Investing in the development of data on learning outcomes is only worthwhile, however, if education ministries have the capacity to analyse and make use of it. Having staff with relevant analytical skills and understanding of education reforms is essential.[449] More challenging to develop — if they do not exist — are effective internal systems to make use of insights from EMIS and other education data and adjust plans accordingly. Where those capacities and processes are formalized, they are more likely to influence education outcomes if staff have the agency and resources to act on them.[450]

5.2.6 CLEAR ROLES AND RESPONSIBILITIES, WITH ACCOUNTABILITY FOR OUTCOMES

Any education reform involves a range of actors with responsibility for implementation. For example, updating the curriculum will, at minimum, involve the ministry of education centrally and devolved representatives, curriculum development institutes, producers of textbooks or other learning materials, teacher training institutions, teachers, school leaders, and teachers' unions, as in the case of Kenya's competency-oriented curriculum reform.[451]

Numerous actors are involved in reforming an education system. The high number of actors responsible is due to the complexity inherent in developing a system that allows all young people to acquire foundational knowledge and develop relevant skills. Table 5.3 below captures some of the most important actors and roles involved in education systems. As discussed in Section 5.2.2, those actors and their institutions need to be involved in the process of developing reforms to have some ownership of them and improve the likelihood of implementation.

Defining clear roles and responsibilities is not only a matter of coordination between different stakeholders, but also of ensuring they are accountable. There is a lack of consensus in the literature about how accountability in education management can best be promoted.[452] Approaches that clearly identify a goal, such as delivering on quality education (e.g., by strengthening overall teacher competence and professionalism) or digital upskilling, are likely to lead to systems that better prepare young people for the future of work. Further, transparently sharing data and information on outcomes with stakeholders such as students, parents, and communities can generate upward accountability. Such accountability is only likely to have a positive effect, however, if actors are empowered and resourced to make required changes, whether at the school, district, or national level.

TABLE 5.3
ROLES OF DIFFERENT ACTORS TO ACHIEVE FOCUS ON SKILLS FOR THE FUTURE OF WORK

	ACTOR	POSSIBLE ROLE
Within education sector	Curriculum development institutes	Ensure curricula operationalize skills visions, are scaffolded to enable progress in learning, and are realistic (not overcrowded)
	Examinations authorities	Ensure high-stakes exams test skills and competencies as well as knowledge; explore embedding continuous assessment into overall grades
	Textbooks and learning materials developers	Ensure learning materials are produced and distributed on time and are aligned with curriculum
	Teacher training institutes and teacher resource centres	Ensure teachers are trained and supported to teach skills-oriented curricula; provide specific support for STEM, languages, entrepreneurship, digital skills, etc.
	District education authorities	Support delivery and monitor implementation of reforms; collect data on outcomes
	Inspectorates	Ensure schools are effective, and identify support needs
	Alternative education providers	Accreditation of qualifications; enable transition between different elements of system
	Teachers' unions and professional associations	Gain buy-in for reforms and insight into priorities for building skills for work, best ways of teaching to promote skill development
	Representatives of faith-based and other non-state providers	Ensure quality provision aligned with national curricula; limit cost barriers in non-state sector; generate innovations that can be scaled up in state sector
Outside education sector	Office of the President	Ensure sector policy is aligned with high-level priorities of political leadership; articulate importance of education reforms
	Ministry of Finance	Dialogue over sector funding
	Ministry of Labour, Ministry of Economic Development	Skills planning and forecasting
	Employers and private-sector bodies	Ensure skills and competencies are aligned with market needs

Source: Authors

5.3 CASE STUDIES ON ACHIEVING EDUCATION REFORM IN SUB-SAHARAN AFRICA: SENEGAL AND SIERRA LEONE

Senegal and Sierra Leone offer important insights for countries aiming to reform and expand secondary education systems. Senegal has significantly expanded general secondary provision while also starting to increase vocational education opportunities. Sierra Leone has rapidly expanded secondary education from a low base after 11 years of conflict and in spite of the world's deadliest Ebola outbreak in 2014. Senegal illustrates some of the challenges and successes in its efforts to expand secondary education, enhance quality, and embed an orientation towards helping young people develop viable skills. Sierra Leone demonstrates what can be achieved in an environment where multiple stakeholders — government, donors, and a non-state provider, the Catholic Church — work together towards a shared goal: substantially expanding access to secondary schools for girls and in rural areas.

While both Senegal and Sierra Leone continue to face challenges in providing quality secondary education and vocational training at scale, their experiences are instructive. Those cases both demonstrate the importance of many of the six practices important for successful reform described above: political will, clear and adequately resourced policies, focused attention to equity gaps, using data for policy development and implementation, and partnerships with a range of actors. It is less clear the extent to which those two countries created clear roles, responsibilities, and lines of accountability for actors in the system.

5.3.1 SENEGAL: EXPANDING SECONDARY EDUCATION AND IMPROVING GENDER EQUITY[453]

Senegal's path to universal secondary education began with its commitment in 1991 to universal primary education. At that time, the government made six years of primary education compulsory, substantially increasing the share of the budget spent on primary education and massively expanding the system to make fee-free public schooling available throughout the country. A decade later, the ten-year education sector plan, or PDEF (2001–2010), was instituted at a time of political change and made a commitment to universalize basic education. The compulsory education age limit was raised from 12 to 16 years and a commitment to fee-free lower secondary education was made in 2010. Secondary education expansion has benefitted from the government's longstanding commitment to, and investment in, primary education.

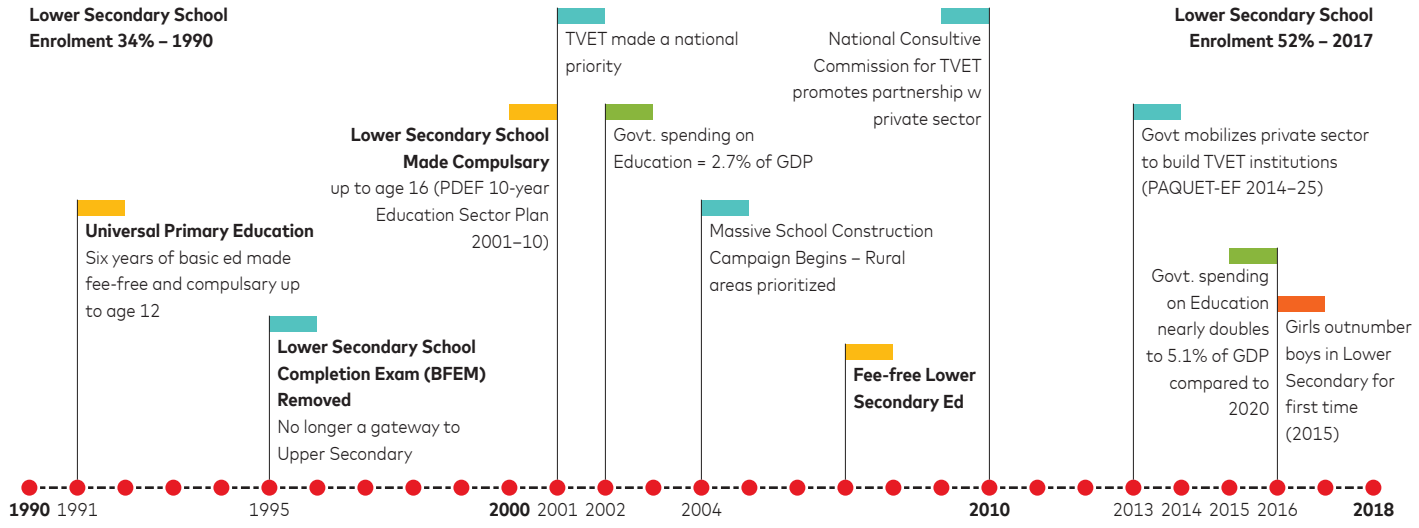
Senegal's government has recently set a target of 30 percent of lower secondary school graduates enrolling in TVET ...

In the three decades since enacting its universal primary education policy, Senegal has made sustained improvement in access to both primary and secondary, with improvements in gender equity as well. The transition rate from primary to lower secondary school and the gross enrolment rate in lower secondary have recorded steady growth.[454] Between 1991 and 2016, the national transition rate almost doubled, from 39 percent to 73 percent. Girls lagged approximately three percentage points behind boys over that period but made great increases in enrolment, constituting 53 percent of lower secondary students in 2018 (up from 38 percent in 1996). Upper secondary gross enrolment rates for both genders tripled from 11 percent in 1996 to 35 percent in 2018.[455]

Since 2000, Senegal has also made strides in expanding access to technical and vocational education and training (TVET) at the secondary level. In its 2001–2010 PDEF plan, the government declared TVET a national priority and promoted it as a means of helping young people develop skills for the market (rather than as an alternative for those who had failed at general secondary education). That emphasis helped to reduce stigmatization of TVET. A decade later, under the *Programme d'amélioration de la qualité, de l'équité et de la transparence dans l'éducation et la formation*, or PAQUET-EF (2013–2025), the education policy framework was organized around i) access, ii) quality, and iii) governance. Enrolment in TVET has more than doubled to 54,000 in 2015. So far, efforts to improve young people's preparation for work have translated primarily into expansion of TVET provision as an alternative to upper secondary general education. Senegal's government has recently set a target of 30 percent of lower secondary school graduates enrolling in TVET, indicating that there is still a long way to go from the current 10 percent of learners at the upper secondary and tertiary levels combined who are enrolled in TVET today.

Several factors appear to be related to Senegal's success over nearly three decades at increasing the proportion of the secondary-age population enrolled in both general and technical education while also improving gender equity.

FIGURE 5.1
TIMELINE OF EDUCATION REFORMS IN SENEGAL (1990–2018)



Source: Based on Performances Group, "Secondary Education Quality in Senegal: A Case Study," Secondary Education in Africa Background Note (Toronto: Mastercard Foundation, June 2019).

VISION AND POLITICAL WILL

Senegal implemented key policies and sustained them over time, demonstrating considerable vision and political will across successive administrations. The government passed compulsory education laws, mandating schooling for boys and girls first for six years of primary school in 1991, and then making lower secondary education up to age 16 compulsory in 2001 through the PDEF (10-year education policy), which was made law in 2004.[456] It's worth noting that although those laws have helped drive school participation, enforcement is low. The government also boosted enrolment in secondary education through a reform that removed the lower secondary completion certificate (*Brevet de fin d'études moyennes*, BFEM) as a prerequisite for enrolment in upper-secondary-level education in 1995. Attention to education quality and training is apparent in the government's education sector plan, entitled PAQUET-EF, which was updated in 2018 to better align with commitments to the African Union Agenda 2063 and the Sustainable Development Goals.

INCREASED FINANCING FOR EDUCATION

To meet its ambitious goal of making lower secondary education accessible nationwide, Senegal's government made considerable investments in secondary school construction, with rural areas prioritized. Between 2011 and 2016, the number of lower secondary schools grew at a rate of 6.9 percent per year and the number of schools with upper secondary classes more than tripled between 2007 and 2016.

Senegal mobilized its public finances, increasing its spending on education as a share of GDP. As of the early 2000s, as the government sought to universalize fee-free primary and later fee-free secondary, the ratio of government education expenditure to GDP increased to nearly six percent (in 2013–14) from 2.5 percent in the late 1990s. Education expenditures as a share of the total government budget have been more variable, but rose from a low of around 16 percent in the early 2000s and have stayed consistently above 20 percent since 2009.

FIGURE 5.2
SENEGAL'S PUBLIC SPENDING ON EDUCATION 1998–2017

Source: Performances Group, "Secondary Education Quality in Senegal: A Case Study," Secondary Education in Africa Background Note (Toronto: Mastercard Foundation, June 2019), p. 20.

The vast majority of funding for education is domestically financed, and of that, 95 percent goes towards recurrent spending rather than capital spending or other education enrichment programs.[457] Until 2005, the majority of that funding went to primary schooling; at that point, prioritization shifted in favour of lower secondary education. Making education compulsory forced resources into the system so that the government was not in violation of laws it had passed. Donor finance has been supplementary (90 percent of education expenditure was domestically financed from 2009 to 2014), but despite the existence of sector development plans, aid has largely been channelled into discrete projects.

ATTENTION TO EQUITY

Over the years, Senegal has made improving gender equity and increasing access to secondary school in rural areas a priority. The government prioritized rural areas in its school construction campaign after passing the law in 2004 making secondary education compulsory up to age 16. Public communications have focused on the importance of educating both girls and boys. The government conducted massive enrolment campaigns to encourage both girls and boys to enrol in school, in which Departmental Committees for the Promotion of Girls' Education within the Ministry of Education partnered with school principals. In school construction, the government prioritized building separate latrines for male and female students.[458] Since 2015, girls have outnumbered boys in lower secondary education.

PARTNERSHIPS

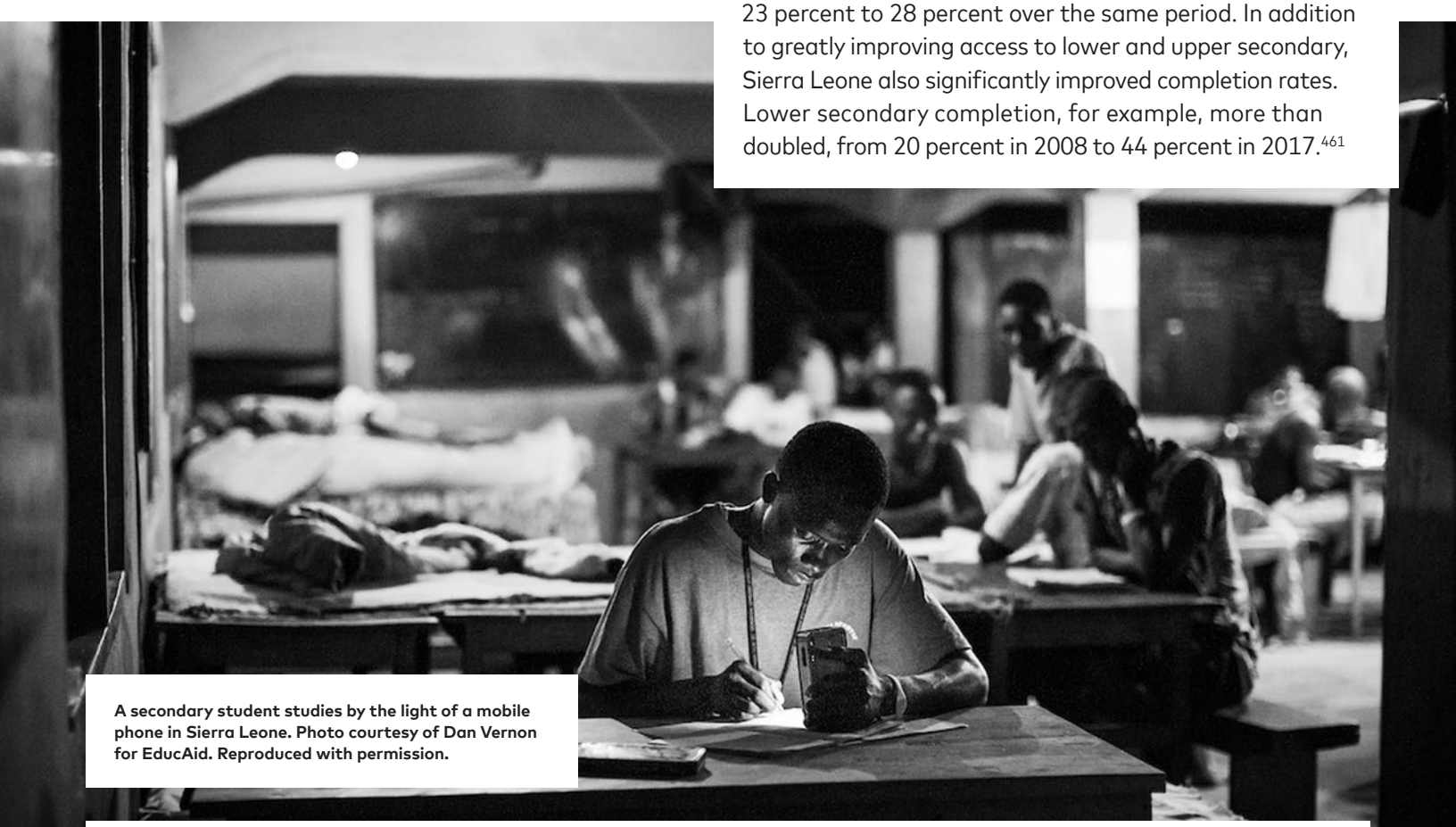
Partnerships with the private sector and international donors have been particularly important in helping the government expand secondary education and TVET. The government mobilized the private sector in the building of TVET institutions. Between 2013 and 2015, 82 out of 88 new TVET institutions were built using private finance. The integration of traditional apprenticeships into the formal system also increased the supply of TVET places. Massive government investments in building schools were generally backed by communities and local authorities, which helped in the construction of the *écoles de proximité* throughout the country, targeted especially to rural areas and helping to nearly quadruple the number of schools built, from 455 in 2000 to 1,921 in 2016.

Government has also created institutions designed to foster dialogue and cooperation with the private sector. For TVET, that resulted in the creation of a National Commission for Consultation on TVET, the Partnership Program Commission, and the Partnership Commission for Certification. All are consultative frameworks that support and strengthen social dialogue in TVET and make training more relevant to employment.

5.3.2 SIERRA LEONE: EQUITABLE POST-WAR EXPANSION OF SECONDARY EDUCATION[459]

Sierra Leone, one of the world's poorest countries, has made great strides in increasing equitable access to secondary education. It did so despite emerging from an 11-year war in 2002 and facing enormous setbacks with the damage done to the economy by the halving of the iron ore price.[460] Sierra Leone has achieved significant improvements in equitable access and completion of secondary school — from a very low base — through a combination of approaches including vision and political will as demonstrated through its national plans with verifiable targets and increased investments, building coalitions for reform, directing resources to disadvantaged groups (poor girls, rural populations), and effective partnerships with civil society, private actors, and international donors.

Throughout the period between 2000 and 2017, available data show impressive improvements in access to and completion of secondary education. Albeit starting from a low base after the war, gross enrolment in lower secondary more than doubled from approximately 25 percent in 2001 to 58 percent in 2017. At the upper secondary level, by contrast, there was a much smaller increase, from around 23 percent to 28 percent over the same period. In addition to greatly improving access to lower and upper secondary, Sierra Leone also significantly improved completion rates. Lower secondary completion, for example, more than doubled, from 20 percent in 2008 to 44 percent in 2017.[461]



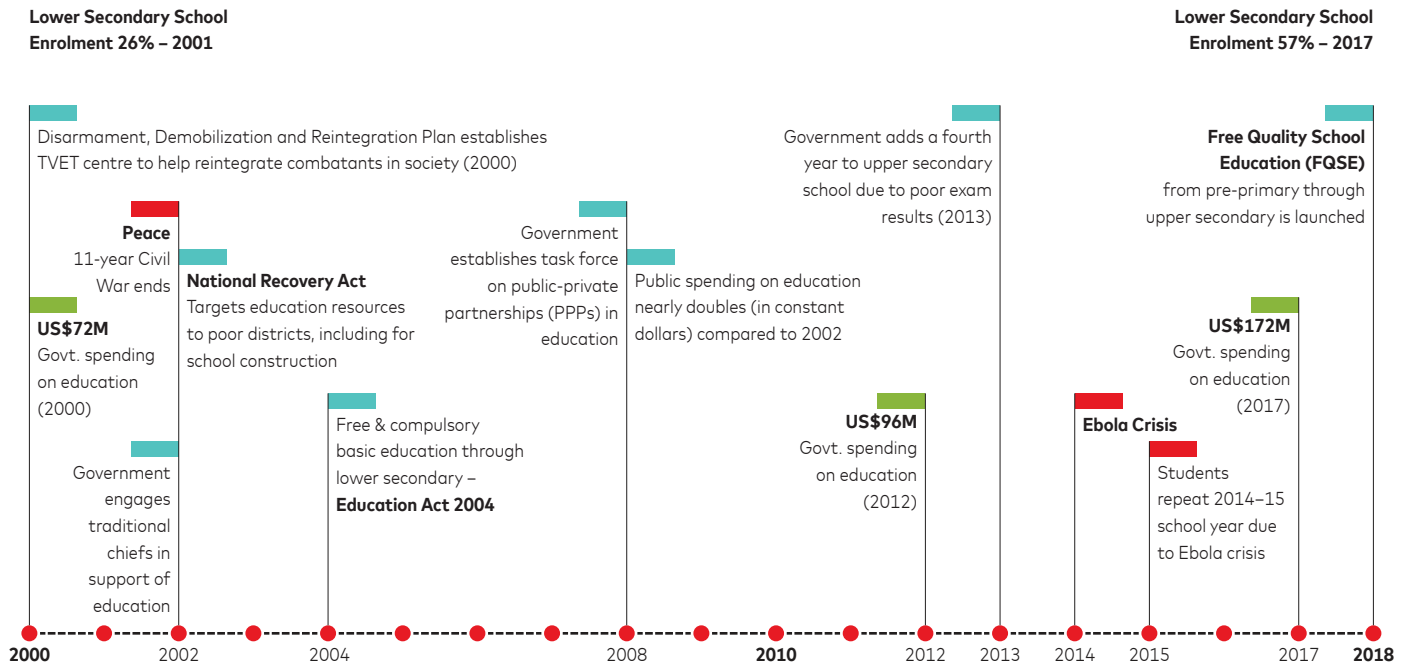
A secondary student studies by the light of a mobile phone in Sierra Leone. Photo courtesy of Dan Vernon for EducAid. Reproduced with permission.

Sierra Leone also advanced parity in gender, fully closing the gender gap in access to lower secondary schooling.[462] By 2017, Sierra Leone had also significantly closed the gender gap in lower secondary completion, with the gender parity index (GPI) on completion of lower secondary rising from 0.60 in 2008 to 0.89 in 2017. A value of 1.0 indicates gender parity. Targeted policies to support girls' education help explain those advances, as discussed below.[463]

Along with vastly improved gender parity in access to and completion of secondary education, Sierra Leone also made gains in equity according to both location and income. It achieved the greatest gains in the period between 2008 and 2013. Sierra Leone reduced inequalities between urban and rural areas in terms of enrolment and completion of both lower and upper secondary education. For lower secondary during the period from 2008 to 2013, the discrepancy between rural and urban areas closed by 24 percentage points. Similarly, differences in secondary enrolment and completion between the poorest and wealthiest quintiles improved by an average of 17 percentage points.[464]

Despite the Ebola epidemic in 2014, which led to schools being closed for eight months, enrolment rates have continued to rise. The Ebola outbreak led to national school closures, with students being forced to repeat the 2014–2015 school year and diversion of resources to address the epidemic. Despite those setbacks, enrolment rates have continued to rise at both the lower and upper secondary levels. In 2017, gross enrolment was 57 percent for lower secondary school and 27 percent for upper secondary school, with completion rates of 44 percent and 19 percent respectively.[465] That data, while demonstrating the enormous progress made, also indicates the scale of the challenge ahead to improve completion.

FIGURE 5.3
TIMELINE OF EDUCATION REFORMS IN SIERRA LEONE (2000–2018)



Source: Adapted from Ezekiel Nonie and Miriam Mason, "Case Study: Post-Primary Education Enrolment & Completion in Sierra Leone, Secondary Education in Africa Background Report" (Toronto: Mastercard Foundation, 2019).

VISION AND POLITICAL WILL, CLEAR PLANS, AND A FOCUS ON EQUITY

Political leaders across four successive administrations over nearly two decades articulated a vision for expansion of education. That vision, backed by the political will to publicly support and implement education policies that expanded provision and promoted equity, were crucial to Sierra Leone's impressive record of progress. Expansion of access is typically an easier prospect for politicians and leaders to promote than is direction of resources to particular marginalized groups or districts. Sierra Leone, however, accomplished both. Leaders' vision and political will is evidenced by policies enacted by the government, including fee-free primary education beginning after the war.

The Disarmament, Demobilization and Reintegration Plan, established by the Government of Sierra Leone in 2000, focused on reintegrating ex-combatants into society and helping them learn new skills. The government established TVET training centres to serve that purpose. After 2002, the Ministry of Education also integrated technical skills such as technology, woodworking, masonry, and electricity into the general secondary curriculum.

The post-war National Recovery Strategy of 2002 was an evidence-based plan built on a district-level needs assessment and was used to focus resources at the district level while helping equalize conditions nationwide. The Strategy outlined district-by-district priorities with a focus on school infrastructure, textbook distribution, teacher training, and fee-free access to primary education. It set targets for the number of secondary schools and provision of TVET training per district and strengthened the capacity of the Inspectorate Division of the Ministry of Education, Science and Technology within each district to monitor execution. Additionally, the two successive Poverty Reduction Strategy Papers of 2005 and 2008 contained pillars focusing on human development and education, with plans and targets for expanding basic education.

In another example of political will, in 2013, Sierra Leone added a fourth year of senior secondary school after very poor performance of students on the West African Senior Secondary Certificate Examination (WASSCE). The fourth year was added on recommendation of the Gbamanja Commission, which was established by the government after fewer than one percent of students passed the exam.[466]

After the Ebola crisis in 2014, education was again one of the pillars of the post-crisis recovery plan, with significant infrastructure programming and an emphasis on equity and inclusiveness. The government has demonstrated further commitment to education through its free universal education policy announced in 2018, extending free-free education from pre-primary to upper secondary.

Sierra Leone made a strong and deliberate effort to address gender, wealth, and location inequalities, yielding significant closure of equity gaps over two decades. In addition to fee-free secondary education for all girls completing primary school as part of the National Recovery Strategy from 2002, the government offered to cover girls' uniforms and textbook costs, addressing some of the indirect costs of secondary education identified in Chapter Six on financing. Under the National Recovery Strategy, the payment of public examination fees also enabled students who would not otherwise have been able to afford to sit their exams to do so. Additional programs include the UK Aid-funded Girls Education Challenge project, which drove improved access to education for girls through a range of initiatives aimed at increasing the numbers of female teachers. Civil society organizations have instituted some complementary programs to enable adolescent mothers to continue their education.

INCREASED LEVELS OF FINANCING

Sustained progress in access, completion, and equity has required increased financing by the government, supplemented by donor resources. The government more than doubled the total amount allocated to education (measured in constant dollars) from 2000 to 2018, increasing the proportion of public spending on education from 20 percent of the government's budget in 2000 to 30 percent of the budget in 2018, when the government announced its free quality education policy to extend through upper secondary school.[467] However, with the Ebola crisis, education spending declined as a portion of the budget in 2014 when it constituted 15.1 percent of government spending. Continued support from international institutions and bilateral donors was also important in stabilizing financing to the sector.

BUILDING COALITIONS FOR REFORM

Sierra Leone's government, at various times, built coalitions in support of education expansion and improvement of access for rural and other vulnerable populations. After the 11-year war, Sierra Leone's government engaged traditional chiefs as part of the National Recovery Strategy of 2002. Rehabilitation included government efforts to enlist chiefs' support for education, building on the fact that during the war, some chiefs' children had studied abroad and returned as advocates of reform. Additionally, some former teachers were appointed chiefs during the disarmament process.

After the Ebola crisis, the government also sought support and engagement from community stakeholders, including parents, youth, and school authorities. Projects involved community stakeholders, children, and school authorities in activities that helped enrol children in schools and helped them stay. Local stakeholders in many communities enacted by-laws for the compulsory return of children to school by their parents and guardians. Returning children and youth to school safely was judged to have been highly successful, as evidenced by continued growth in enrolment and completion of primary and secondary school after 2014.

PARTNERSHIPS

A key factor underpinning progress has been coordination and partnership between relevant ministries, NGOs, private actors and religious bodies, as well as international donors and institutions. Partnerships were particularly important in the National Recovery Strategy, when a series of reconstruction projects rebuilt rural schools and provided textbooks in all districts. The government enacted a policy that allowed non-formal schools to be set up and operate, and then register after the fact, which facilitated partnerships with NGOs and faith-based organizations to provide education. The Roman Catholic Church, which has run hundreds of schools across Sierra Leone for many decades, played a significant role by requiring its priests and schools to return to their villages and to start operations, however remote. It provided additional support and stipends to facilitate that. The Church set an example that government and civil-society organizations followed and was a key player in reversing the rural-urban migration that had taken place because of the war.

Alignment with global education policies such as Education for All, Universal Primary Education, and, later, Sustainable Development Goal 4 undergirded that vision and enabled Sierra Leone to access substantial donor support. There was great international goodwill towards and resources available to Sierra Leone in the immediate post-war period, and to a certain extent that has been maintained because of its low position on the Human Development Index. The United Kingdom's Department for International Development (DFID), for example, provided direct support to the Ministry of Education, as well as for disarmament efforts. Later, DFID's Girls Education Challenge, in partnership with government and the Forum for African Women Educationalists (FAWE), increased the number of female teachers by providing financing to teacher training colleges to meet set quotas for augmenting the numbers of female teacher graduates.

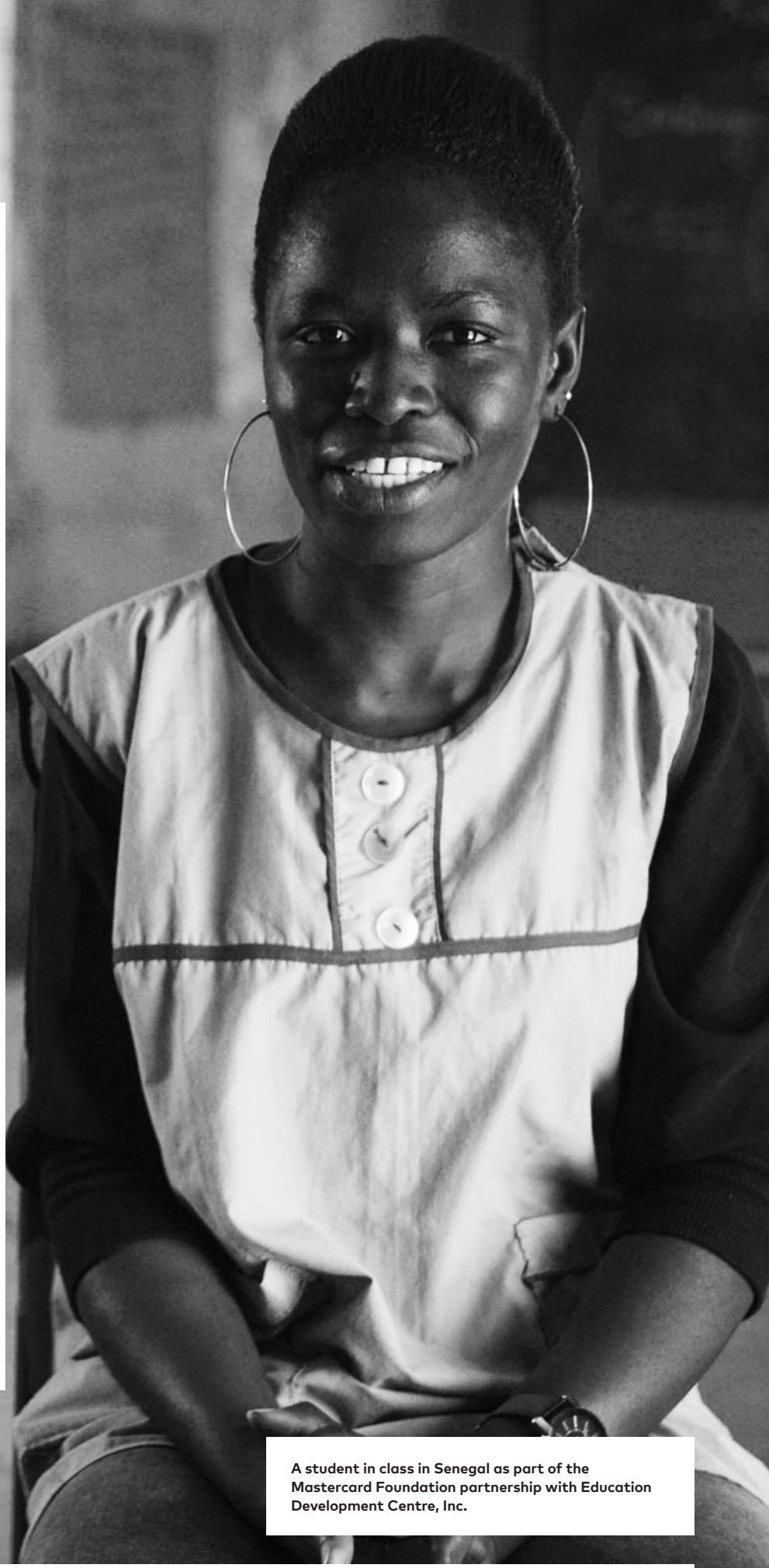
Projects involved community stakeholders, children, and school authorities in activities that helped enrol children in schools and helped them stay.

Sierra Leone also established policies to facilitate public-private partnerships in education. The Ministry of Education established a task force on public-private partnerships to establish mutually beneficial policy frameworks to incentivize private-actor participation in education provision, school management, technology, and school-work linkages. Those policies were set out in the government's Poverty Reduction Strategy Paper of 2008, in which education was a primary focus. In Sierra Leone, half of all students at the secondary level are enrolled in non-state schools.[468]

5.3.3 OUTSTANDING CHALLENGES IN SENEGAL AND SIERRA LEONE: ACCESS, LEARNING, AND GOVERNANCE

Despite the significant progress achieved by both Senegal and Sierra Leone, substantial challenges remain in relation to access, quality, and governance. Current education policy in both countries seeks to address those inter-related issues.

Significant challenges in access remain at both lower and upper secondary levels. In Senegal in 2016, the lower secondary gross enrolment rate was below 30 percent in two regions. For the upper secondary level, four regions had gross enrolment rates below 20 percent. Those disparities are underpinned by regional disparities in financial resources[469] and household poverty. Supply of places in TVET is also limited and remains skewed to urban areas, with 47 percent of TVET facilities located in Dakar and only 1.73 percent of total trainees in rural areas.[470] In Sierra Leone, recent government calculations indicate the need for over 6,000 new secondary school classrooms immediately. Inequalities by wealth remain significant. However, the introduction of the free quality education policy with fee-free schooling from pre-primary through upper secondary as of September 2018 may help to enable more of the poorest young people to access secondary education, particularly if indirect costs to schooling can be met through government support as described in Chapter Six.



A student in class in Senegal as part of the Mastercard Foundation partnership with Education Development Centre, Inc.

Quality of secondary education remains perhaps the greatest outstanding challenge, with teacher qualifications a major issue. Senegal's rapid expansion in secondary provision led to a significant recruitment of contract and volunteer teachers without qualifications. In 2016, over 20 percent of secondary school teachers lacked a teaching degree or qualification, a figure rising to 25 percent in many regions, compared with 10 percent in Dakar. Competency-based curricula have not yet been introduced in secondary education, despite being introduced in primary and TVET in 2008, and widespread skepticism towards those approaches remains. In Sierra Leone, teacher training colleges are not only weak themselves, but also tend to recruit from the lowest band of secondary school graduates. Furthermore, the many untrained and unqualified teachers are not on payroll, so they lack motivation and are hard to hold to account. The Teaching Service Commission is now being operationalized, with district offices being established, the Professional Standards for teachers and school leaders being published (though those are generally considered to be too complex), and the Commission generally mobilizing to take up its responsibilities.

Levels of learning remain low in both Sierra Leone and Senegal. Students in Sierra Leone perform far below their Nigerian and Ghanaian peers in the West African Senior Secondary School Exam (WASSSE): the pass rate in English Language is less than half of pass rates in Nigeria and Ghana, whereas for mathematics it is 10 times lower. Exam pass rates, however, increased from just over five percent in 2014 to nearly 20 percent in 2017, the most recent years for which data was available.[471] The 2017 Secondary Learning Grade Assessments, administered to 3,200 lower and upper secondary students across the country, show clear gender and wealth disparities, with male pupils from wealthier households performing better than female students from less wealthy households and remote schools. Currently in Senegal, the lower secondary school leaving exam (BFEM) and *baccalauréat* pass rates in private Catholic schools are above 90 percent, compared to national success rates of 52 percent and 35 percent respectively.[472]

"If access can improve so significantly by all players pulling together, then quality issues can surely be improved too, with the same determination and focus of purpose."[473]

Additionally, enrolment in and quality of STEM courses remains low, despite government efforts. In 2016 in Senegal, only 27.5 percent of upper secondary students enrolled in science majors, with girls lagging six percentage points below boys and rates in Dakar higher than other regions. Those low learning and STEM enrolment rates are likely to hinder Senegal's aspirations to develop a knowledge economy. To combat that, Senegal has set targets for increasing the share of secondary students studying STEM fields. In Sierra Leone, recent Poverty Reduction Strategy papers recognized the poor state of science teaching and the absence of ICT in secondary schools. One study found that junior secondary students could read only 57 percent of the math vocabulary they needed to understand their classes.[474]

Challenges in TVET remain prevalent in Senegal. Stigma against TVET and insufficient capacity in TVET institutions are barriers to skills acquisition. TVET continues to be seen as a second choice for young people who have "failed" at general secondary education, deterring young people from enrolling. More significantly, budget allocations remain low (less than four percent of education expenditure). As a result, though slightly more girls than boys are enrolled, girls are highly concentrated in women's technical training facilities. Finally, insufficient funds are available to replace equipment and other necessary materials in TVET training institutions, particularly in the technology-intensive sectors.

Governance challenges underlie many of the weaknesses in the education sector. In Senegal since the early 2000s, secondary school teachers' salaries have consistently declined compared to those of other civil servants of similar rank and qualifications. The appointment of underqualified, untrained, inexperienced teachers on precarious contracts further signalled that the government attaches little value to the position, while making teacher career management difficult for school administration. Many teachers moonlight — and commonly make more in a month from private lessons than from their regular job. Teacher and student strikes are common in the general secondary education system, meaning that curricula are seldom completed, in particular outside the two examination class years (grades 9 and 12).

In Sierra Leone, governance challenges include corruption in the distribution of resources, demotivation of teachers, lack of effective monitoring of program implementation, and accountability relationships that focus on a chain of upward accountability to higher-level officials, but not to students and communities. Government capacity to manage various donor inputs and translate them to effective change — other than the expansion of access — has been a challenge. Good governance and leadership are key to successful institutions but have largely been neglected within the education reforms so far.

Governance reforms have recently been introduced. In Senegal, recent efforts to improve education governance in secondary schools include: i) the creation of a body of Lower Secondary School Inspectors to help monitor the school environment and improve teaching and learning throughout the country; ii) the expansion of internet access and the computer network in secondary schools (though acute local disparities remain); iii) the introduction of a results-based management approach and principles in staff management; iv) the elaboration of a renewed consultation framework between teachers' unions and the national education authorities; and v) enhanced efforts to develop partnerships with NGOs and civil society organizations. It is too early to tell whether those measures will help resolve some of the governance challenges outlined above.

5.3.4 CONCLUSIONS FROM THE EXPERIENCES OF SENEGAL AND SIERRA LEONE

The experiences of Senegal and Sierra Leone demonstrate that, even in low-resource and post-conflict settings, it is possible to expand secondary education and reduce inequalities in access and completion. Those cases testify to the importance of vision and political will, articulated through clear national plans and strategies that are well resourced through expanding budgets for education and supplemented by donor assistance. Successive governments in both countries kept their eye on secondary education, maintaining commitment to reform despite a change in political parties and administrations. Government efforts to build coalitions for reform, especially in Sierra Leone, and partnerships with non-state actors played important roles in expanding support for access to secondary schools and TVET. Both countries used district-level data to target funding to areas with greater need.

Reforms have not fully addressed income inequalities in access to secondary education, and serious challenges to improving learning remain. Tackling those will be a very significant endeavour. However, greater attention is now being focused on the challenge of improving teaching quality, and in particular upskilling the very large numbers of unqualified teachers in Sierra Leone. In Senegal, an emphasis on promoting secondary-level STEM and greater private-sector involvement in TVET (with government's role shifted to accreditation, monitoring, and quality control) are signs of continued focus on reform and improvement.

5.4
AN ENABLING ENVIRONMENT FOR INNOVATION

Innovation happens along a spectrum from incremental to disruptive. Leadbeater and Wong offer a commonly cited framework on innovation in education that outlines four strategies.[475] Innovations that are "sustaining" seek incremental changes within current systems. Those innovations seek to "improve" and "supplement" traditional approaches to formal learning through the school system, and informal learning through families and communities. Innovations that are "disruptive," however, seek to "reinvent" and "transform" existing systems. Given the scale of challenges in the education system in Africa, both efforts to improve and supplement current systems, as well as new ideas to reinvent and transform, will be necessary.

FIGURE 5.4
APPROACHES TO INNOVATION IN EDUCATION

	FORMAL LEARNING	INFORMAL LEARNING
Sustaining Innovation	IMPROVE schools through better facilities, teachers, and leadership.	SUPPLEMENT schools by working with families and communities.
Disruptive Innovation	REINVENT schools to create an education better fit for the times.	TRANSFORM learning by making it available in radically new ways.

Source: Charles Leadbeater and Annika Wong, "Learning from the Extremes" (Amsterdam: Cisco Systems, Inc., 2010), p. 4, reformatted by authors.

The fast pace of social and economic change today means that disruptive innovation that seeks to reinvent and transform will be increasingly relevant. As discussed throughout this report, the changing nature of work is increasingly putting a premium on a wider set of skills than secondary education systems in Africa, or globally, have historically been designed to deliver. Further, the increased importance of lifelong learning and of flexible approaches to schooling raises questions about new mechanisms to foster learning at scale. That context heightens the imperative for innovative thinking in education systems.

Innovation has been defined by the Global Partnership for Education as "the successful exploitation of new ideas that create value at scale, and can apply to products, processes, strategies and approaches."[476] Innovation is often used as shorthand for a new technology or intervention. Innovation in education, however, can be thought of more broadly and refers to any change to how "inputs are organized and aligned for improved service delivery through, for example, a new program or new policy framework."[477] Innovation encompasses incremental changes, adaptations, or improvements, as well as more radical departures from current practice. One common theme across many understandings of innovation in the education sector is the concept of "success."[478] Defining an innovation around success implies having a clear problem statement, objective(s) to be achieved, defined metrics of impact, and rigorous evaluation.

Much innovation in education is driven by non-state actors. Often operating at a smaller scale, and outside the bureaucratic system, non-state actors are often seen to have more liberty to carry out iterative and adaptive processes where they design, implement, evaluate, and adapt rapidly.[479] A recent report published by the Brookings Institution catalogued nearly 3,000 global education innovations. According to analysis of that database, most education innovations were originated by non-state actors, both not-for-profit and commercial, although NGOs delivered a much larger share (62 percent) compared with the private sector (26 percent).[480] In that sample, private-sector innovations were largely driven by actors in the education technology space. Governments, by contrast, were found to be responsible for only 12 percent of innovations catalogued, though the scale of government-led innovations might be larger.

The dominance of non-state actors in innovation can contribute to challenges of fragmentation and scale, unless they work in partnership with governments. Innovations can be seen as splintered and driven by external interests — either non-governmental organizations or the private sector, operating independently and with their own interests. That has, in some places, led to "innovation fatigue," with governments concerned about limited bandwidth for regulation and oversight.[481]

Moving from piloting to scale is critical for innovation to have systemic impact. The background papers for this report, as well as a number of global databases,[482] profile multiple programmatic innovations in education in Africa — yet many are fragmented, small-scale, and carried out by actors external to national education systems. How innovation moves along a pathway from pilot to comprehensive reform is a key question in that literature. The World Bank offers a model of "problem-driven iterative adaptation"[483] in which new ideas must first be piloted and evaluated and then adapted or discontinued if not effective. For adoption at scale, an innovation must also have high likelihood of success in other contexts. Even with evidence of success, the path from evidence of impact to adoption at scale is not an automatic one. Both the question of how to link innovators and governments and how to address the political economy of reform are crucial in order for innovation to move from demonstrated impact to adoption at scale.

Supporting government to be an incubator and driver of innovation in education may improve the potential for new ideas to be mainstreamed. Improving government capacity to directly pilot, evaluate, and scale innovations is one approach. Another is to help governments to create a more conducive environment for innovation with clear policies and a commitment to partnering with non-state innovators. By carving out spaces at arm's length from political and bureaucratic processes where experimentation can thrive, governments can create linkages with the creative and dynamic forces of the non-state sector. Those types of approaches may improve the likelihood of innovation being integrated into the national education system and scaled up to improve efficiency and outcomes.[484]

Some African education systems are starting to develop institutions and structures to nurture innovation through integration into strategic plans, or by fostering broader innovation ecosystems. For example, Rwanda's Ministry of Education, in its recent strategic plan, directly calls for fostering innovation in the education sector as a central part of its strategy.[485]

"Encouraging innovations in the education sector is a central element of [Rwanda] MINEDUC's strategic focus. Introducing innovative solutions to address existing challenges in the sector will act as a catalyst for achieving overall sector goals."[486]

Innovation units embedded within education ministries could lead to adoption of innovations and transformation of organizational culture. In Sierra Leone, for example, in 2018, the President appointed a Chief Innovation Officer in the new Directorate of Science, Technology and Innovation. One of their roles will be to work closely with the Ministry of Technical and Higher Education to further scientific research in schools and colleges. Embedding a focus on innovation may be a paradigm shift for institutions focused on delivery of national plans and compliance with specific procedures. Experience demonstrates that unless leadership at the highest level communicates the value of innovation, and that failure will not have negative repercussions for the individuals concerned, teachers and schools may be reluctant to develop or adopt innovations.[487]

Innovation at the school level also has promise to drive change from the bottom up. In Uganda, for example, the organization STiR is working in schools to help teachers share their classroom innovations with other teachers, school leaders, and ministry officials and to eventually drive system-level change.

BOX 5.1
PROMISING PRACTICE: INNOVATION IN COLLABORATION WITH GOVERNMENTS

Rwanda's Ministry of Education has fostered uptake of new ideas within the system. Between 2013 and 2015, DFID funded an innovation in education program in Rwanda which involved 26 pilot initiatives. Those with the closest linkages to current education priorities, that addressed common challenges or bottlenecks and could garner support from across the wider education community, had the best chance of being scaled up. Those included a program to enhance teachers' skills in teaching in English, a professional development and certification program for early childhood care and development, and an online community of practice for teachers that avoided the need to travel long distances.

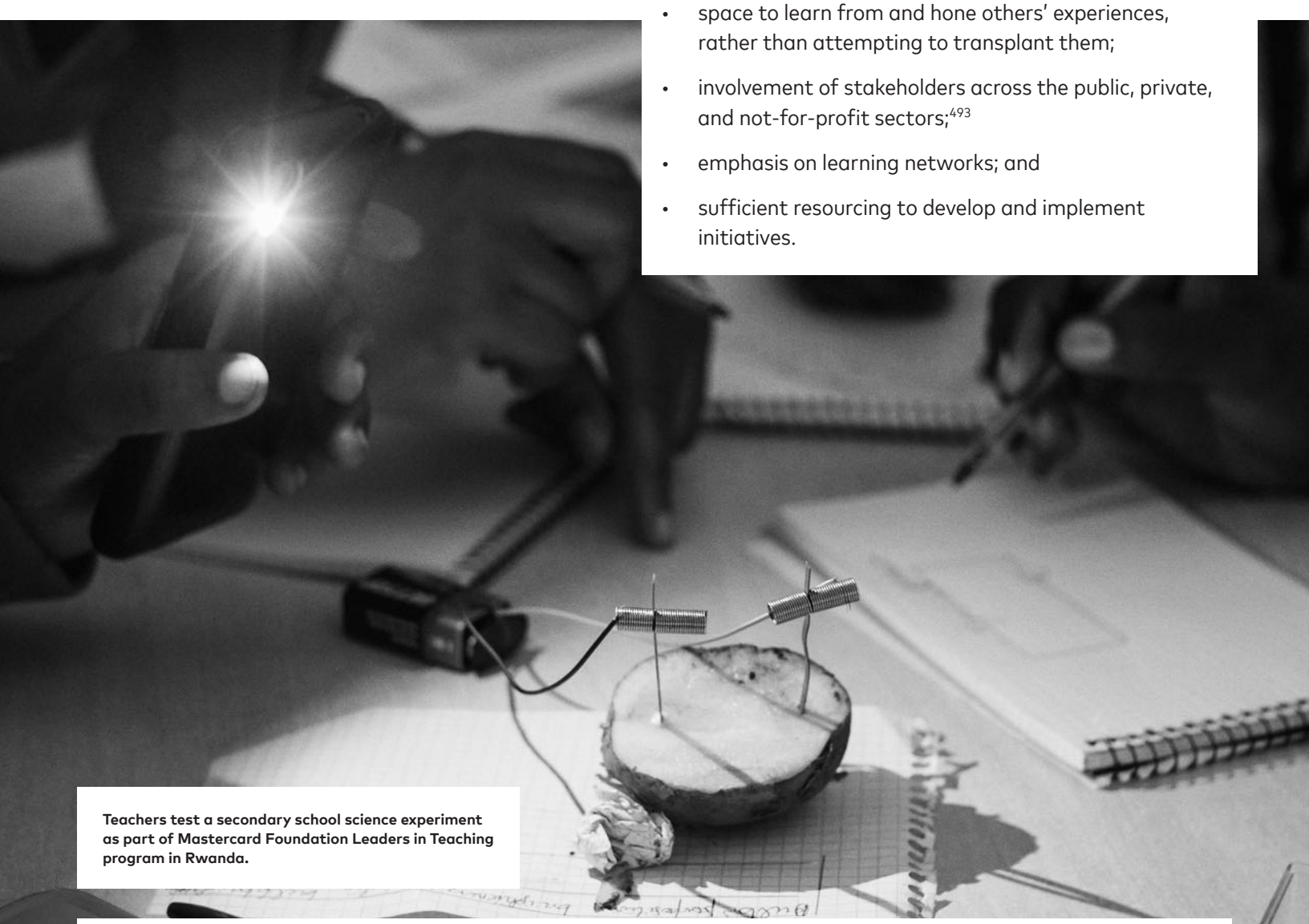
Innovation Summits in Nigeria spark collaboration, pilots, and scaling of new ideas. Nigeria's Education Partnership Centre promotes partnerships within and between the public and private sectors to improve the quality and accessibility of education. It organizes annual Nigeria Education Innovation Summits (NEDIS), bringing together stakeholders from government, research, civil society, the private sector, and development-funding organizations. The summits focus on exploring innovative and sustainable approaches for increasing access to quality education, especially for marginalized and underserved groups. Summits focus on scaling innovations to embed them in policy systems and reach more beneficiaries.[488]

How can a hub or incubator help drive and institutionalize innovation? Experience in Rwanda and Nigeria suggests that innovation hubs within ministries of education can:

- develop innovation strategies (including terms of service and performance targets);
- periodically assess innovation culture in the education sector;
- increase capacity and aptitude for innovation across the sector via staff training and promotional events at the national and sub-national level;
- make time and space available at all levels for innovative approaches to be tested;
- manage the evaluation of innovation projects and knowledge mobilization of findings; and
- earmark funding for developing innovative approaches in education.[489]

Governments can create education innovation ecosystems to support reform. Innovation ecosystems are networks of mutually supportive actors and structures within the public, private, and not-for-profit sectors that aim to promote effective change in education. Those ecosystems typically need to balance innovation for short-term improvement with longer-term, more transformative innovation — looking at unmet needs and future demands and making sure the system is adapting as fast as possible to meet them.[490] Literature in that area suggests that critical ingredients of successful innovation ecosystems include:

- effective and committed leadership that communicates the case for change and inspires others to join in;[491]
- hubs or incubators that coordinate, inspire, and share ideas;
- a culture of openness and critical debate, with space to fail;[492]
- space to learn from and hone others' experiences, rather than attempting to transplant them;
- involvement of stakeholders across the public, private, and not-for-profit sectors;[493]
- emphasis on learning networks; and
- sufficient resourcing to develop and implement initiatives.



Teachers test a secondary school science experiment as part of Mastercard Foundation Leaders in Teaching program in Rwanda.

5.5 RECOMMENDED ACTIONS

- **Promote alignment of vision and reform coalitions for effective implementation. Invest in creating a shared vision and buy-in to system reforms that expand the focus on skills for work in secondary education and responds to the needs of young people and their communities.** That will help facilitate implementation of reforms. Some stakeholders' interests are likely to be incompatible with new visions and those will need to be addressed head-on. Building coalitions for reform among actors such as teachers' unions, parents, youth, ministry staff, employers, and traditional leaders has been shown to facilitate reform.
- **Enable implementation through viable plans with clear roles and responsibilities, establish accountability mechanisms, and provide adequate funding.** Clear policies and plans, with roles and responsibilities for specific outcomes, are important for effective delivery of services and reform. Clear roles are not sufficient; actors must have incentives to operate accordingly and be held accountable for outcomes, in part through use and sharing of data as well as promotions and sanctions. Finally, actors and institutions must be resourced appropriately to achieve desired outcomes.
- **Develop systems for cross-sectoral dialogue.** Create mechanisms to bring together and facilitate dialogue between education sector stakeholders and other labour market actors (e.g., ministries of finance, labour, youth, and ICT), as well as employers, industry associations, and unions. That can help facilitate the development of national skills strategies and improve the relevance of secondary education to labour market needs.

- **Strengthen the capacity of ministries of education to translate inputs into outcomes.** That includes training for ministry officials and staff to upgrade skills and gain new technical expertise, including the ability to address political-economy constraints on effective implementation. Training should also strengthen ministry staff's ability to use education management information systems for decision-making and monitoring of education outcomes.

- **Institutionalize capacity to innovate in education within government.** As the pace of social and economic change increases, and as greater numbers of youth seek to access secondary education, the need for innovation in education will intensify. Ministries of education should develop embedded innovation units that use an approach of continual piloting, testing, adaptation, and scaling of successful models so that promising approaches can be mainstreamed. Ministries could also establish education innovation ecosystems that engage stakeholders across the public, private, and not-for-profit sectors and foster critical debate with space to learn and fail.

Students in secondary school in Nairobi, Kenya, as part of the Mastercard Foundation Partnership with Global E-Schools and Communities Initiative to improve student learning in science, math, and English.

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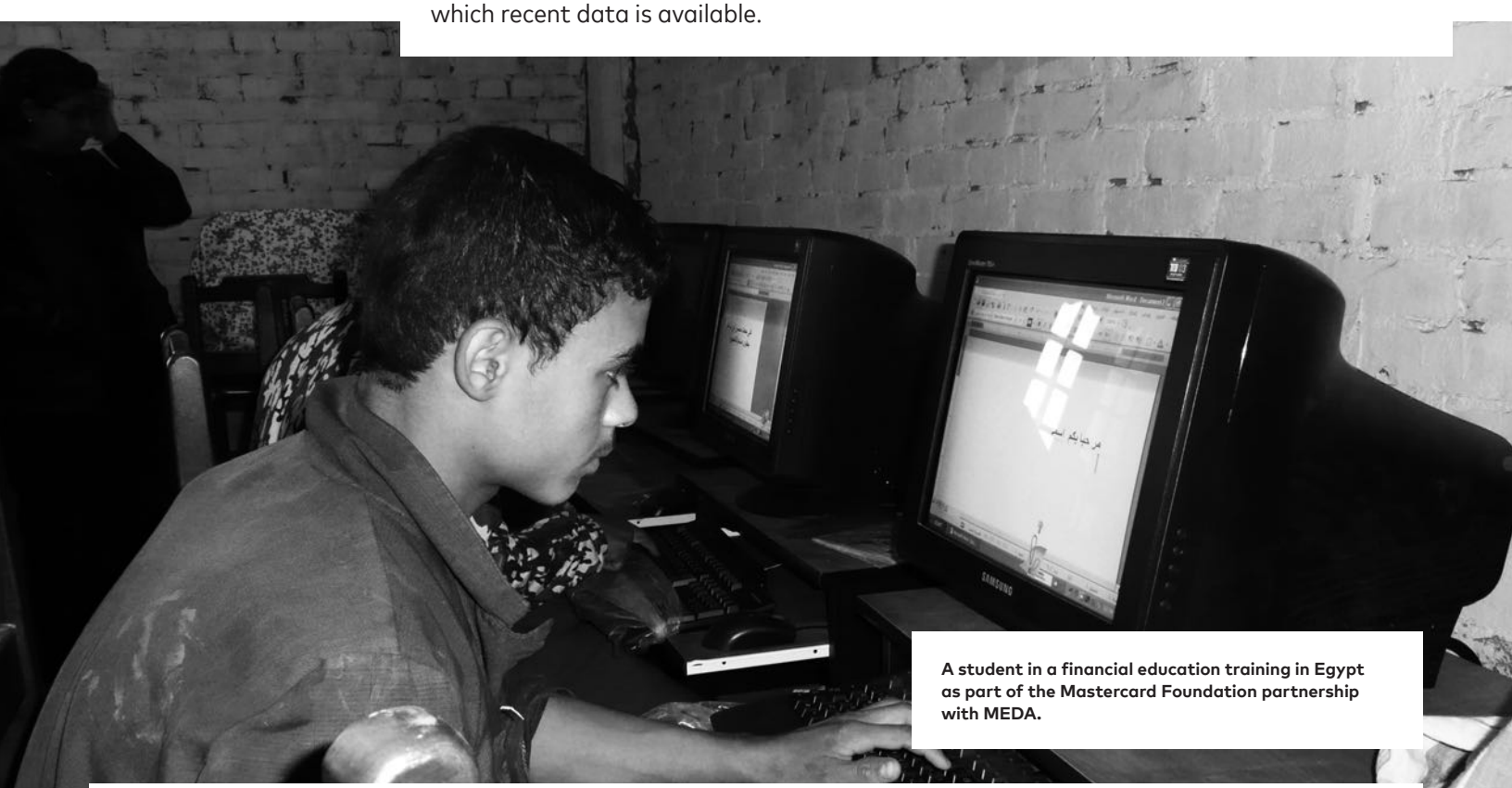
493. This includes people with understanding of current systems, procedures, approaches, bottlenecks, and organizational norms, and those with vision and creativity to imagine how things could be done differently.

FOCUS
LEARNING FROM NORTH AFRICA'S EXPERIENCE

North Africa has made considerable progress on access at the secondary level yet faces similar challenges to those in Sub-Saharan Africa with regard to relevance of curricula, as well as learning and employment outcomes. In North Africa, learning levels, as indicated by scores on international assessment programs (such as TIMSS and PISA) are well below OECD averages, as are those in the very few participating Sub-Saharan African countries (e.g., Botswana, Mauritius, South Africa). Young people in North Africa also face substantial challenges in accessing work: levels of unemployment and underemployment in the formal sector are notably high in North Africa, and, as in Sub-Saharan Africa, the majority of young people seek livelihoods in the informal sector. In this section, we explore lessons from North Africa's success in achieving high levels of participation in secondary education and some of the initiatives underway in the region that aim to address ongoing challenges. Analysis is based on countries in North Africa for which recent data is available.



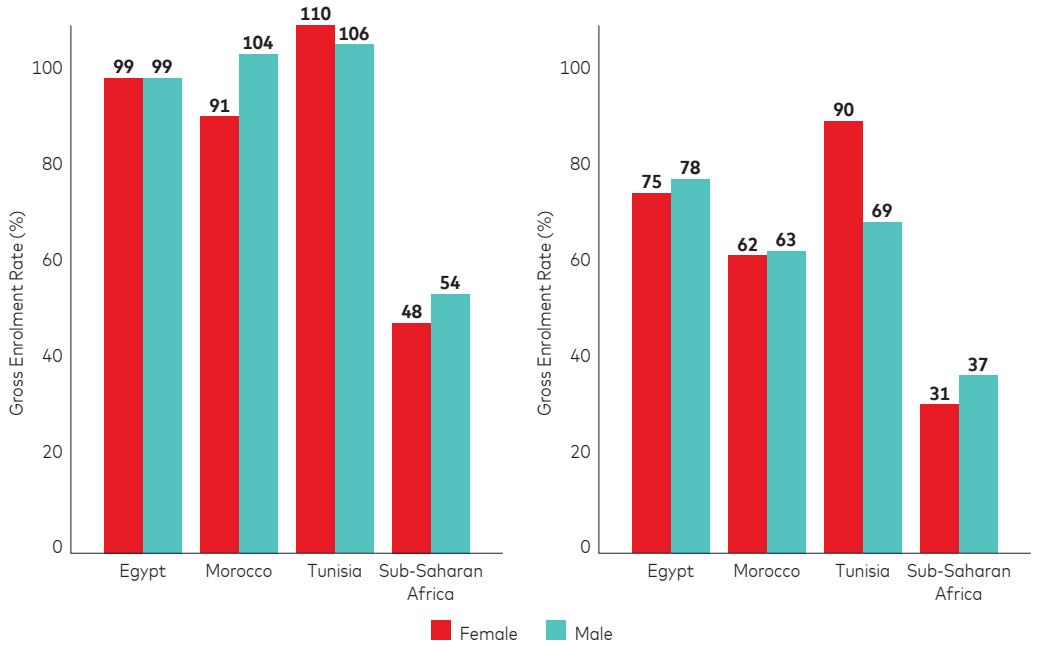
A student in a financial education training in Egypt as part of the Mastercard Foundation partnership with MEDA.

ACCESS TO SECONDARY EDUCATION AND SKILLS DEVELOPMENT

Rates of access, retention, and transition across the education system are significantly higher in North Africa than in Sub-Saharan Africa. For example, in both Egypt and Morocco, two countries with recent data available, the gross enrolment rates at the secondary level in 2018 were 88 and 80 percent, respectively, almost double the average of 43 percent in Sub-Saharan African countries.[494] The differentials between North and Sub-Saharan Africa are similar at both lower and upper secondary levels.

FIGURE F3.1

GROSS ENROLMENT RATES IN SELECT NORTH AFRICAN COUNTRIES: LOWER SECONDARY (LEFT PANEL) AND UPPER SECONDARY (RIGHT PANEL)



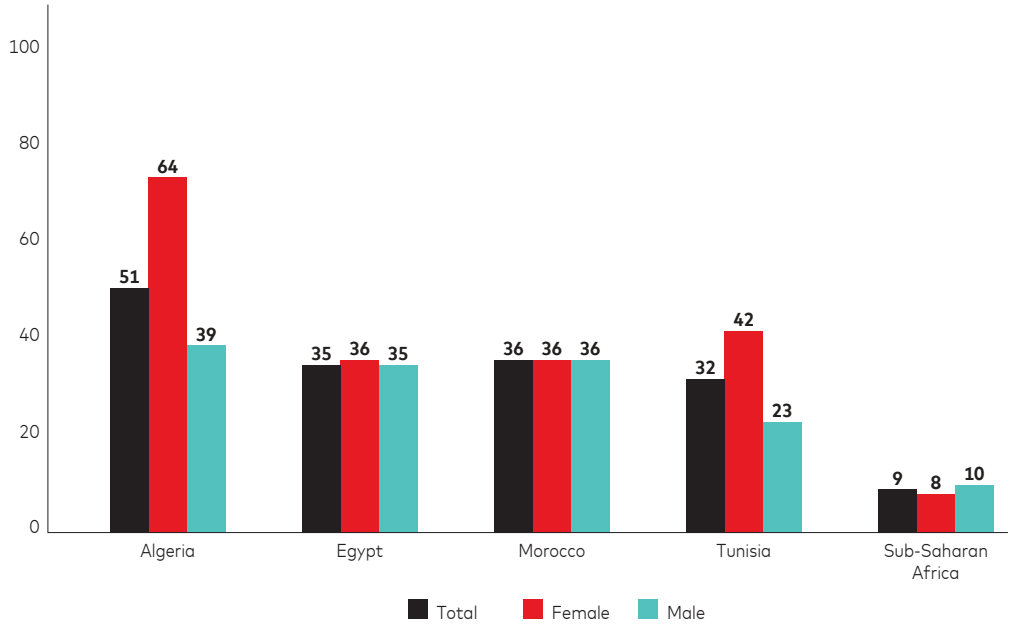
Source: Gross Enrolment Rates based on most recent available data (2018 for all countries, except for Upper Secondary data for Tunisia which is from 2016) from the UNESCO Institute for Statistics (UNESCO-UIS) database, accessed August 2019.

Transition rates from primary to secondary education are high in North Africa, though inequities based on income, gender, and location persist. Ninety-four percent of students in Egypt, and 90 percent of students in Morocco, transition from primary to lower secondary school, compared to only 75 percent of those who complete primary education in Sub-Saharan Africa.[495] However, data from Egypt suggests that while 28 percent of upper-secondary-school-age youth were out of school in 2014, that ranged from only nine percent among the wealthiest young women and men living in urban areas, to up to 53* percent of the most vulnerable youth — in that case, poor young men in urban areas.

* UNESCO-UIS database for the indicator "Out-of-school rate for youth of upper secondary school age (household survey data)" accessed September 2019 .

Participation in tertiary education in North Africa is also considerably higher than in Sub-Saharan Africa, particularly for young women. In Algeria, the phenomenon of a reverse gender gap has become increasingly evident since the early 2000s, driven primarily by higher rates of access for young women in urban areas. That seems to be due to a complex combination of factors, including: policies that have been put into place to ensure that primary school, then secondary school and university, are as accessible to girls and young women as they are to boys and young men; changing attitudes towards women's roles that have reduced family bias against girls' education; and a virtuous cycle for girls and young women of greater academic success and an increasing desire to pursue their education. Young men, on the other hand, seem to be more affected by lack of motivation in school and pressure to support their families.[496]

FIGURE F3.2
TERTIARY GROSS ENROLMENT RATES
IN SELECT NORTH AFRICAN COUNTRIES



Source: Tertiary Gross Enrolment Rates based on most recent available data (2018 for Algeria, Morocco, and Sub-Saharan Africa; 2017 for Egypt and Tunisia) from the UNESCO Institute for Statistics database (UNESCO-UIS), accessed December 2019.

Participation levels largely reflect high investments in education over a sustained period.[497] Despite slight declines in recent years, North African countries have spent over 20 percent of their national budgets on education: for example, in 2015, Algeria spent 20 percent of its national budget on education, [498] Tunisia spent 21 percent,[499] and Morocco spent 25 percent.[500] Those figures are significantly higher than the average across countries in Sub-Saharan Africa of 17 percent.[501] Furthermore, higher average GDP per capita levels in North Africa[502] mean that educational investments have been considerably greater than in Sub-Saharan Africa. International donor assistance for education in North Africa, as in Sub-Saharan Africa, is an important supplementary source of funding, yet government resources account by far for the largest share of education spending.

Despite much higher participation rates in North Africa than in Sub-Saharan Africa, quality of education continues to be a challenge. Egypt and Morocco were the only two North African countries to participate in the 2015 Trends in International Mathematics and Science Study (TIMSS) assessments. Results placed both countries near the bottom of the rankings. On average, Moroccan eighth graders scored at less than half of the international median in 2015, despite showing significant improvement from the previous round of testing done in 2011. Algeria and Tunisia were the only North African countries that participated in the 2015 Programme for International Student Assessment (PISA) exam. Over two-thirds of Algerian students did not meet a basic proficiency level in reading, science, and mathematics, while in Tunisia, students were found to have some of the lowest scores out of the 69 participating countries in all three subjects (reading, mathematics, and science). Morocco participated in 2018 and also performed near the bottom of the rankings, with only 27 percent, 24 percent, and 31 percent of students attaining minimum levels of proficiency in reading, math, and science, respectively.[503]

As in Sub-Saharan Africa, lack of fluency in the language of instruction affects students' development of foundational skills. In Algeria, Morocco, and Tunisia, science and mathematics are generally taught in French at the secondary level, yet many students do not speak that language at home.[504] In Algeria, for example, while nearly 90 percent of urban populations are fluent in French, only 55 percent of rural populations are fluent; similarly, only 30 percent of all Tunisians are fluent in French, most of whom live in or near the capital city.[505] Lack of fluency in the language of instruction limits access to education and achievement, putting rural and minority populations at a disadvantage.[506]

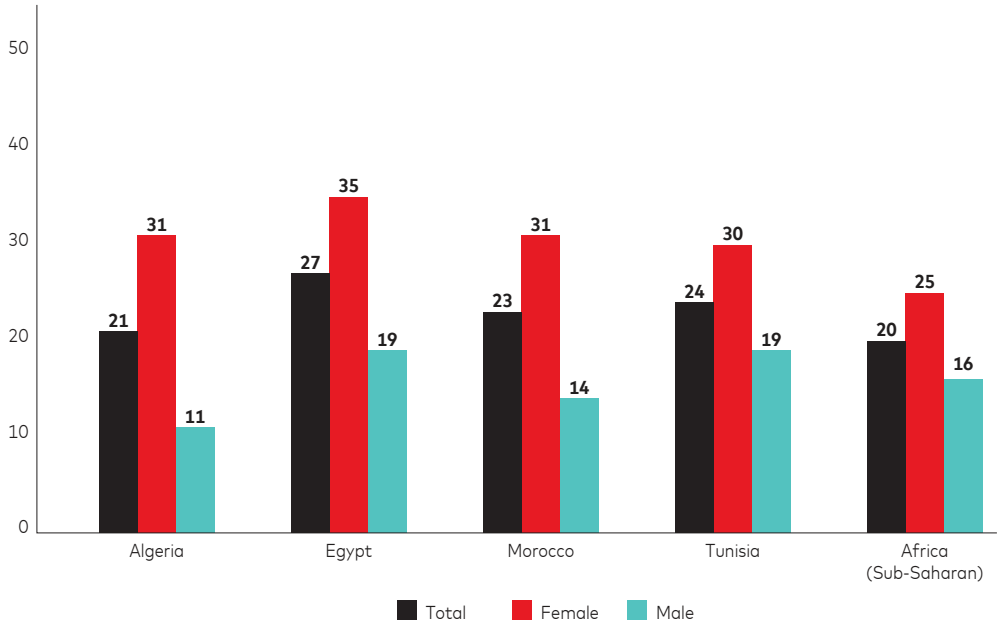
Most North African education systems continue to foster a culture of credentials and qualifications rather than competencies. Exam-based promotion from level to level is a common feature of education systems in the region, causing students to focus on gaining certifications and diplomas, while teachers teach to the test. Traditional rote-teaching as a pedagogical practice is rooted in both the colonial French and British legacies of those North African countries, as well as the Islamic educational history in which recital of the Qur'an and other texts was a common practice.[507] Most of the region's education systems thus emphasize memorization, rather than skill development,[508] though our analysis of education strategies indicated plans to develop more learner-focused pedagogies.[509]

Lack of fluency in the language of instruction limits access to education and achievement, putting rural and minority populations at a disadvantage.

LABOUR MARKET CONDITIONS

Youth unemployment rates across North African countries exceed those of Sub-Saharan Africa and have risen or stagnated over the past decade. Youth unemployment has been driven by several factors, including the 2008 global financial crisis and the 2011 uprisings.[510] While structural economic conditions are a key reason for low youth employment rates, a mismatch between young people's skills and those skills employers seek are also a contributing factor.

FIGURE F3.3
YOUTH UNEMPLOYMENT IN SELECT NORTH AFRICAN COUNTRIES AND SUB-SAHARAN AFRICA



Source: Unemployment Rates based on most recent available data (2017 real value data for Algeria and Egypt; 2017 modelled data for Morocco, Tunisia, and Sub-Saharan Africa) from the International Labour Office statistics (ILOSTAT) database, accessed December 2019.

The vast majority of youth who do find work are employed in the informal sector, as is the case in Sub-Saharan Africa. Limited job availability in the formal sector has led many young people to engage in entrepreneurship and self-employment. An ILO study using data from 2016 found that informal employment among youth in North Africa was 88 percent.[511]

There are significant gender inequalities in access to employment and wages. More than two-thirds of 15–29-year-old women in the Arab region, which includes (but is not limited to) North Africa, are not in the labour force, compared with 20 percent of young men.[512] Female workers also experience a gender pay gap. In Egypt, for example, after adjusting for age, education, and experience, the gender wage gap was 35 percent in the public sector and 80 percent in the private sector.[513] Young women's progress in education is thus not translating to equal employment and wage outcomes.

PROMISING PRACTICES IN FOSTERING KEY SKILLS FOR THE FUTURE OF WORK

North African countries are starting to integrate 21st-century skills into secondary school curricula.[514] For example, in Tunisia, a new curriculum reform mainstreams the development of core "life skills" across subjects and at all levels of the education system through an interdisciplinary approach that fosters project-based learning, establishes clear learning objectives, and aims to equip teachers with learner-centred pedagogies.[515] In Egypt, the national curriculum outlines general skills, values, and attitudes to be developed, as well as guidelines for choosing curriculum content, but there is not yet systematic guidance as to how to integrate those skills into teaching and learning.[516] In Morocco, 21st-century skill development is prioritized in later years of formal schooling, while in Libya, those skills have been integrated into the basic education curricula (primary and lower secondary) as well as within teachers' in-service training programs, but are not formally integrated at the upper secondary and tertiary levels.[517]

As in Sub-Saharan Africa, North African countries are investing in boosting digital skills and making use of education technology to improve learning outcomes, though evaluation data remains sparse. North African countries' education plans and strategies reviewed for this report show a strong emphasis on digital upskilling. For example, in 2015, the Tunisian Ministry of Education launched its *Solution numérique pour tous* (Digital Solutions for All). That initiative seeks to work with approximately 150,000 primary and secondary teachers to improve the quality of instruction by promoting the use of digital tools and technologies, and teaching ICT skills and citizenship to nearly two million students across the country.[518] In Morocco, Education Media Company has developed five online guides to different national curriculum subjects, covering both course content and exam preparation. It has been viewed 10 million times over five years, although no data is available on its impact on learning. Chapter Three showcases similar initiatives in Egypt. Evidence from Tunisia and Algeria shows that increasing teachers' access to computers has a much greater impact on learning levels, as measured in PISA tests, than enhancing students' access.[519]

There are promising examples of large-scale programs to boost entrepreneurship skills in secondary education. For example, Egypt's ILO-supported Decent Jobs for Egypt's Young People project offers three key programs: Know About Your Business, Start and Improve Your Business, and Gender and Entrepreneurship Together (GET), or GET Ahead. Since its launch in 2016, Know About Your Business, with support from USAID and GIZ, has become part of the Ministry of Education's entrepreneurship curriculum and has been delivered in 2,000 technical secondary schools to over 1.6 million students across Egypt each year.[520] Similarly, Start and Improve Your Business — the largest global business training management program — has also been adopted by the Egyptian government's Micro, Small and Medium Enterprise Development Agency (MSMEDA), and the GET Ahead training for girls has been integrated into the country's development plan by the National Council for Women.[521] In Algeria, entrepreneurship skills form part of the lower secondary school TVET track.[522]

Beyond the formal education system, non-formal and alternative education programs provide training in a range of skills, including critical thinking, vocational skills, digital skills, and financial literacy to out-of-school youth, many of whom are refugees and low-income girls. Those programs typically use interactive and participatory methods, which can lead to challenges in students' subsequent integration into the (less participatory) formal education system or institutionalizing them within the mainstream curriculum.[523] One promising example is the Neqdar Nasharek project, which supports young out-of-school women in rural communities in northern Egypt to upskill in literacy, business education, vocational training, problem-solving, and civic engagement.[524] An evaluation found a significant impact on participants' engagement in income-generating activities, work aspirations, and business knowledge.[525] After finishing the program, many women return to the formal education system, while one-third of participants gain employment or start their own business.[526] Other initiatives with potential include Morocco's National Integrated Strategy for Youth, which seeks to expand educational and extracurricular activities that promote social inclusion, ICT access, and employment training.[527]

North African governments have invested significantly in developing technical and vocational training opportunities. For example, in Libya, "intermediate institutes" across the country offer formal three-year TVET education at the secondary level.[528] Egypt's Strategic Plan 2014–2030 includes a focus on improving TVET training by forging public-private partnerships between TVET providers, companies, and government agencies, implementing competency-based training for teachers, and developing decentralized and demand-driven TVET institutions.[529] Various government departments and agencies oversee a national quality assurance program based on international standards.[530] Morocco has also developed a national qualifications framework that allows training to take place at a variety of public and private providers. In practice, almost 90 percent of TVET students are enrolled in courses offered by the Office of Vocational Training and Labour Promotion,[531] a public organization that provides both formal TVET education and short-term training opportunities, thus facilitating multiple pathways between education and work.

CONCLUSIONS

That brief overview of evidence from North Africa suggests that relatively high levels of investment in education over a sustained period have contributed to high levels of secondary school participation, though patterns of marginalization of rural young people, low-income young people, and girls mirror those in other regions. North Africa faces similar challenges to Sub-Saharan Africa in ensuring strong learning outcomes in foundational skills. While competency-based curricula are not common in North Africa outside TVET provision, North African education systems have sought to improve learning outcomes through emphasis on integrating digital technology in education. The region has innovated in the use of digital technologies for both students and teachers, often through public-private partnerships that may be of interest to Sub-Saharan African educators. High youth unemployment rates in North Africa have led to concerted efforts to help young people develop key work-relevant skills, with a growing emphasis on 21st-century skills in secondary school curricula and expanding technical and vocational education opportunities, and increased emphasis on entrepreneurship skills courses for secondary school students (in Egypt) and for out-of-school youth.

A young man runs a small enterprise in Egypt after participating in financial education training as part of the Mastercard Foundation partnership with MEDA.

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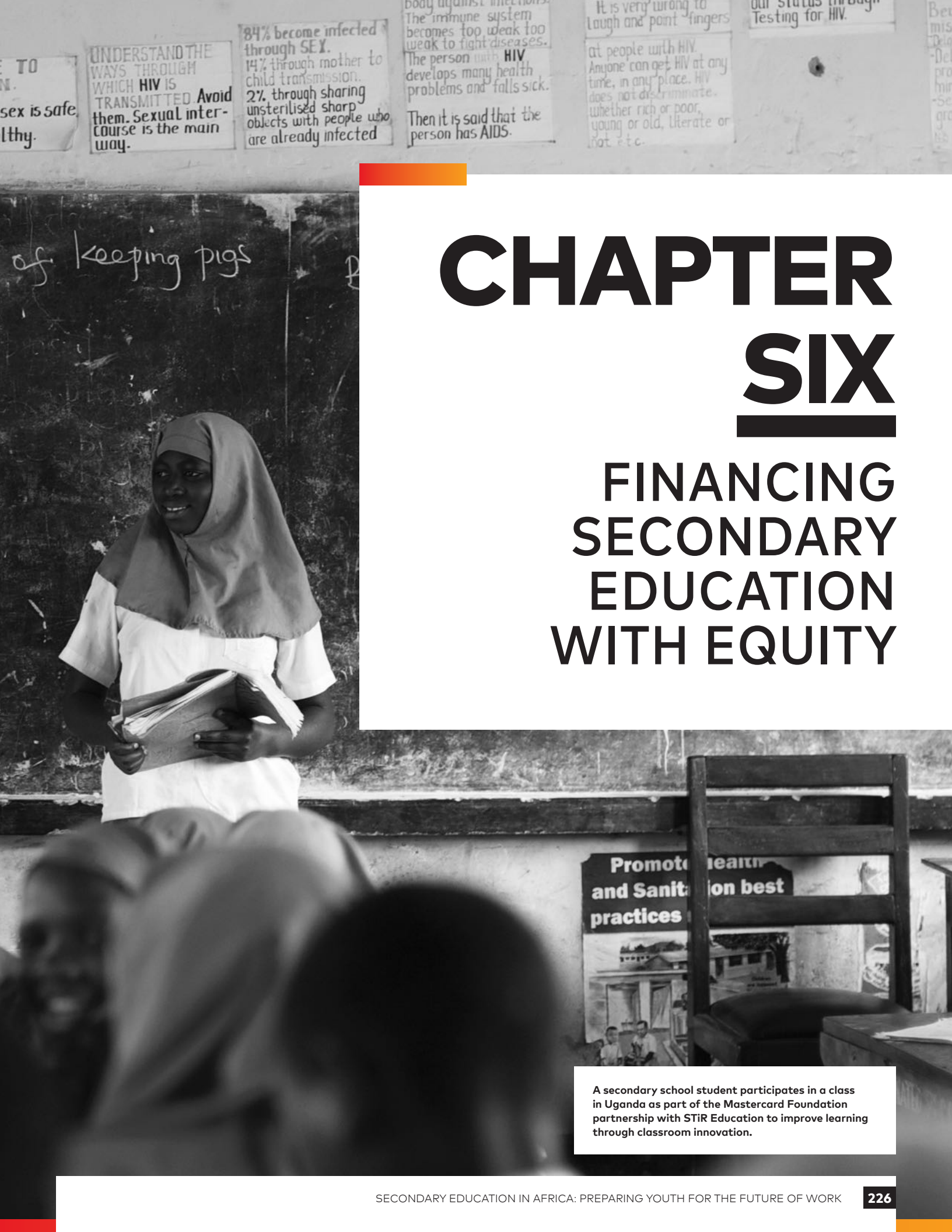
CHAPTER SIX

FINANCING SECONDARY EDUCATION WITH EQUITY



A secondary school student participates in a class in Uganda as part of the Mastercard Foundation partnership with STiR Education to improve learning through classroom innovation.

KEY TAKEAWAYS:

- **Business-as-usual will not provide the financing needed to meet increasing demand for secondary education and to invest in quality, relevant learning.** Bold solutions and innovative financing approaches are required. In addition to governments expanding available resources, efforts must be made to crowd in new actors, employ innovative financing approaches, find efficiencies that make better use of available resources, and make more strategic use of official development assistance.
- **While more resources are needed in secondary education, much more can be done by using existing resources more efficiently.** That includes effective teacher deployment and utilization, reducing high repetition and dropout rates, reducing reliance on boarding facilities, improving education system management, and exploring alternative forms of secondary education delivery.
- **Equity-based financing is needed to reach the most disadvantaged.** Eliminating tuition fees at the secondary level is important, but insufficient to improve equity in access. Targeted, needs-based financing is needed to expand access to universal lower and upper secondary education.
- **Investment in secondary education should not be at the expense of primary education.** While significant progress has been made in expanding enrolment at the primary level, access is not yet universal, and serious learning challenges persist. Quality gaps at the primary level play out in secondary education systems, contributing to repetition, dropout, and inefficiencies in the system. Secondary expansion should not divert resources from addressing unfinished business at the primary level.
- **Progress is possible.** If all countries in Sub-Saharan Africa advanced at the rate of the continent's top 25 percent of improvers, and invested particularly in expanding access to the most marginalized, near-full etnrolment and completion of secondary education by 2050 could be achieved.

A student in science class in Nairobi, Kenya as part of the Mastercard Foundation partnership with Global E-Schools and Communities Initiative to improve student learning in science, math, and English.

6.1 HOW IS SECONDARY EDUCATION FINANCED?

6.1.1 PUBLIC DOMESTIC FINANCING REMAINS KEY

Public domestic financing continues to remain the primary source of funding for secondary education in Africa. The Education Commission estimates that governments in Sub-Saharan Africa currently invest US$25 billion annually in lower and upper secondary education.[532]

Over the past two decades, governments have invested significantly in the expansion of education. That reflects the political will of many governments to prioritize education. However, given that many economies in Sub-Saharan Africa are smaller than those of other regions, and with a growing youth population, the total amount of investment per student in education is still low compared to the level of need.

Sub-Saharan African governments are meeting international education financing benchmarks, though with wide variation. Sub-Saharan African governments have increased domestic spending on education as a percentage of GDP to 4.3 percent between 2012 and 2017, a positive trend but still slightly lower than the global average of 4.8 percent.[533] Likewise, between 2012 and 2017, the average share of government budget dedicated to education was 16.5 percent in Sub-Saharan Africa, higher than the global average of 15.1 percent (see Table 6.1 below). That is in line with the 2000 Dakar Education for All (EFA) Framework for Action which recommended governments earmark 15 to 20 percent of annual budgets for education. But there was wide variation across countries: Central African Republic allocated less than eight percent of its total government expenditure to education, compared with 29 percent in Congo and 33 percent in Ghana.[534]

Secondary education spending as a percentage of total education budgets has increased. Secondary education spending increased from 27.1 percent in 2000–05 to 33 percent in 2012–17. However, it remains lower than the global average of 35.9 percent.

TABLE 6.1
GOVERNMENT EDUCATION SPENDING BY REGION AND INCOME GROUP, 2000–2017

	EDUCATION SPENDING AS A PERCENT OF GDP		EDUCATION SPENDING AS A PERCENT OF TOTAL GOVERNMENT SPENDING		SECONDARY SPENDING AS A PERCENT OF TOTAL EDUCATION SPENDING	
REGION	**2000[1]**	**2017[2]**	**2000[1]**	**2017[2]**	**2000[1]**	**2017[2]**
East Asia & Pacific	4.1	4.6	15.6	15.8	31.8	37.6
Europe & Central Asia	4.4	5.1	12.3	12.2	42.1	37.1
Latin America & Caribbean	4.6	5.5	17.0	18.6	31.3	32.4
Middle East & North Africa	5.5	4.7	13.4	15.3	40.1	41.5
North America	1.7	1.5	11.0	9.0	52.3	44.4
South Asia	3.7	3.8	16.6	16.4	37.3	38.6
Sub-Saharan Africa	3.8	4.3	16.4	16.5	27.1	33.0
GLOBAL	**4.3**	**4.8**	**14.6**	**15.1**	**34.8**	**35.9**

Source: Asma Zubairi and Pauline Rose, "Equitable Financing of Secondary Education in Sub-Saharan Africa, Secondary Education in Africa Background Report" (Toronto: Mastercard Foundation, February 2019), p. 16, drawing on data from the UNESCO Institute for Statistics (UNESCO-UIS) database, accessed June 2018.

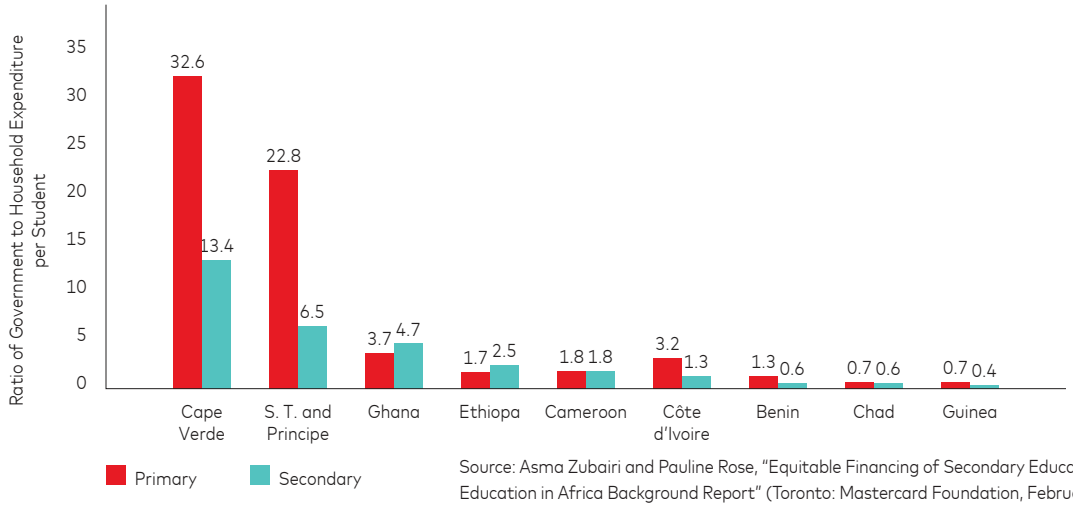
Notes: [1] Earliest year refers to the earliest data point between 2000 and 2005; [2] Latest year refers to the latest data point between 2012 and 2017.

6.1.2 HOUSEHOLDS BEAR A DISPROPORTIONATE BURDEN OF THE COSTS

Household contributions account for a significant share of secondary education costs. In addition to school fees, households incur large out-of-pocket expenses for items such as stationery, school examinations, uniforms, and, in some cases, boarding costs. Analysis across 16 Sub-Saharan African countries shows that household contributions make up 49 percent and 44 percent, respectively, of the cost of lower and upper secondary education, in comparison with 30 percent for primary education. By contrast, household spending only constituted 22 percent of tertiary expenditure, illustrating that higher education in many Sub-Saharan African countries continues to be heavily subsidized by the state, even though the majority of those reaching that level are from richer households.[535]

FIGURE 6.1
FOR THE POOREST COUNTRIES, HOUSEHOLDS CONTRIBUTE AT LEAST AS MUCH AS GOVERNMENTS

Ratio of government spending to household spending on primary and secondary education (2012–17)

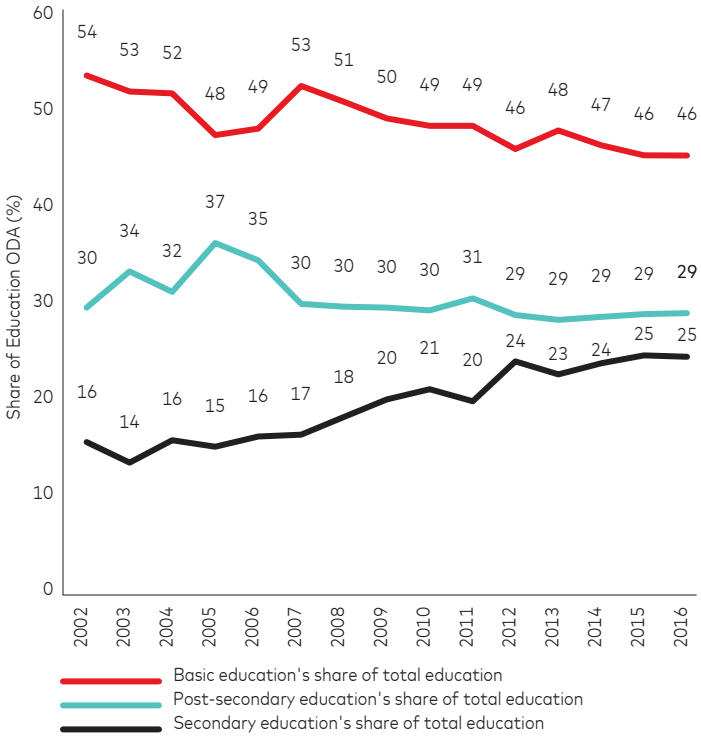


Source: Asma Zubairi and Pauline Rose, "Equitable Financing of Secondary Education in Sub-Saharan Africa, Secondary Education in Africa Background Report" (Toronto: Mastercard Foundation, February 2019), p. 27, drawing on data from the UNESCO Institute for Statistics (UNESCO-UIS) database, accessed June 2018.

6.1.3 INTERNATIONAL FINANCING REMAINS IMPORTANT AND IS DIVERSIFYING

Aid to education continues to fill important gaps in financing in some countries, but official development assistance (ODA) as a share of GDP has fallen in the region. In 28 out of 45 Sub-Saharan African countries, official development assistance fell between 2002 and 2016. Within ODA, education aid for Sub-Saharan Africa has not been a high priority for donors — it has declined from 9.6 percent to 6.6 percent of total aid spending between 2002 and 2016. However, the latest data show that for some countries, ODA makes up a significant part of their expenditure on secondary education. In Benin, Burundi, and Uganda, aid makes up more than one-quarter of total public spending on secondary education. Aid spending at the secondary level is highly concentrated in a few countries. In 2016, the top 10 recipients received 59 percent of total secondary education ODA, with Ethiopia, Ghana, Mozambique, Nigeria, and Tanzania receiving the most.[536] While that list is rightly inclusive of countries with large populations, it does not include many conflict-affected countries which often have the poorest enrolment rates and learning outcomes.

FIGURE 6.2
SHARE OF EDUCATION ODA DISBURSED IN SUB-SAHARAN AFRICA TO EDUCATION SUB-SECTORS (PERCENT)[537]



Official development assistance has started to focus more on secondary education. While ODA disbursed to secondary education grew annually by six percent per annum between 2002 and 2016, ODA for basic education and post-secondary did not grow at equivalent levels. In the case of Uganda and Ghana, for instance, the share of education ODA going to basic education at the beginning of the millennium was well over 70 percent; by 2016, it was less than half that. By contrast, the proportion spent on secondary education increased from 12 percent to 48 percent in Ghana, and from nine percent to 30 percent in Uganda.[538]

Official development assistance has started to focus more on secondary education.

Within direct aid spending on secondary education in Sub-Saharan Africa, in 2016, around 56 percent was spent on vocational secondary education, with the remaining 44 percent on general secondary education.[539] That means that the share of secondary education aid spent on vocational education is disproportionately high, considering that a relatively small share of students enrolled at the secondary level attend vocational programs.

Source: Asma Zubairi and Pauline Rose, "Equitable Financing of Secondary Education in Sub-Saharan Africa, Secondary Education in Africa Background Report" (Toronto: Mastercard Foundation, February 2019); authors' calculations based on most recent available data from OECD Creditor Reporting System Aid Activity database, accessed December 2017.

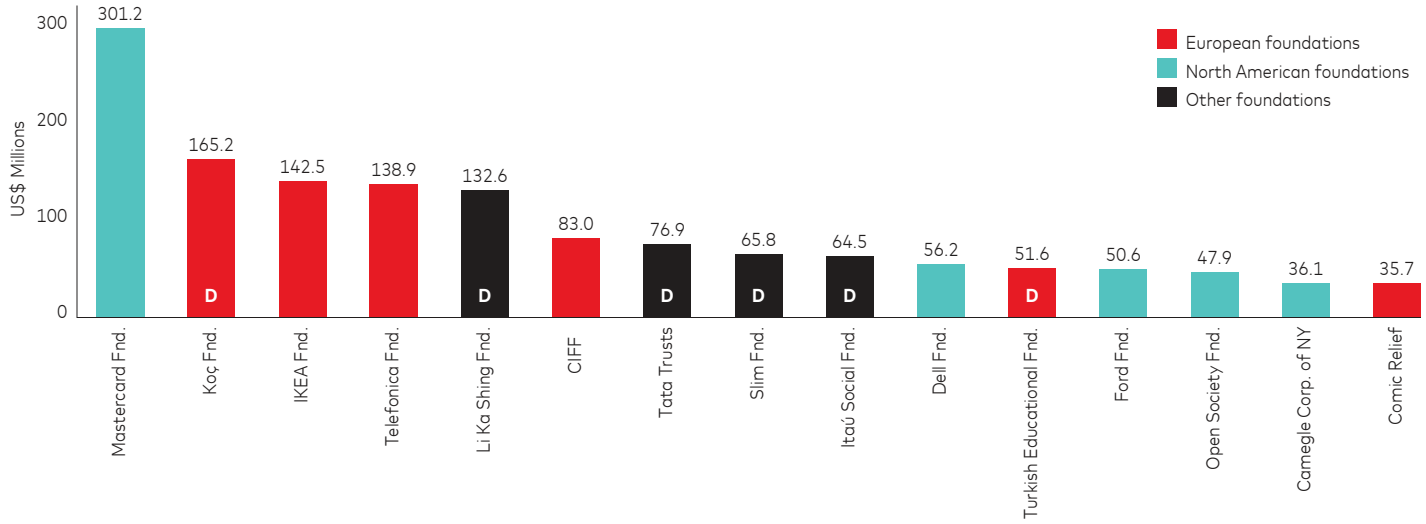
Note: [1] Education ODA and secondary education ODA is inclusive of "general budget support" and "education unspecified" and [2] the large decrease in education's share of total ODA in 2006 is largely because of debt servicing over this period.

ODA can support higher-risk, higher-return investments in innovation. There is considerable scope for more strategic use of aid by supporting long-term investments in areas such as innovation and capacity-building and second-chance programs, as well as targeted programs to support educational inclusion for the most marginalized children and youth. Those areas are often neglected by domestic spending, which must prioritize paying teacher salaries with many competing demands on remaining funds.

Philanthropic funding plays an increasingly important role in financing education in Africa. Over 100 foundations contributed a total of $2.1 billion to education in low- and middle-income countries from 2013 to 2015. A total of 28% of philanthropic funding for education was directed to Africa. Much of the funding was provided by foundations operating domestically (e.g., Tata Trusts in India). Post-secondary and vocational training were the highest priorities for philanthropic funding, compared with secondary education, which received just four percent of the total.[540]

FIGURE 6.3

TOP 15 FOUNDATIONS IN EDUCATION SECTOR, 2013–15



Source: OECD, "Private Philanthropy for Development," The Development Dimension (Paris: OECD, 2018), p. 54.

Note: D stands for foundations predominantly with domestic giving.

6.1.4 PRIVATE-SECTOR FINANCING OF EDUCATION IS EXPECTED TO GROW

Private-sector financing of education in Sub-Saharan Africa is anticipated to grow significantly. While there is no comprehensive data on private-sector investment in education in Sub-Saharan Africa, currently one in five young people is estimated to be educated in private schools, and that is expected to grow to one in four young people by 2021.[541] Projections of private-sector investment in education in Sub-Saharan Africa from 2017 to 2021, for both core education delivery as well as ancillary services such as teacher training and publishing, is estimated to be $16–18 billion across all levels.[542]

BOX 6.1
PROMISING PRACTICE: CROWDING IN PRIVATE-SECTOR RESOURCES — THE WINGS TO FLY PROGRAM IN KENYA[543]

Although the Kenyan government provides fee-free education at the primary and secondary level, families are expected to pay for school uniforms, transport, boarding, and learning materials. Those costs result in fewer students from poor families attending.

The Wings to Fly program, a corporate social responsibility program, seeks to reduce these cost barriers for students at the secondary level. Since 2011, the Equity Bank Group, through its Equity Group Foundation and in partnership with the Mastercard Foundation, USAID, KfW, and other funders, has implemented a scholarship program to enable poor learners, orphans, and other vulnerable youth to access education and succeed in life.

The Wings to Fly scholarships cover tuition fees, uniforms, personal care items, pocket money, textbooks, and transport from home to school and back during the school year. In addition, Wings to Fly focuses on creating a successful scholar and citizen who has the potential to contribute to the social and economic betterment of Kenya.

The Wings to Fly model is unique in its scale and that it leverages the Bank's infrastructure, including the national network of branch offices to administer the program. The Bank connects with the communities in which they work and builds a pipeline of talent by offering internships and advancement opportunities for top scholars. Through that program, the Equity Group Foundation has contributed to Kenya's Vision 2030 and education goals, elevating the cause of equitable access to secondary education and demonstrating the potential for academic and professional success of those from disadvantaged backgrounds. That alignment between public and private objectives contributes greatly to the sustainability and impact of the program.

As of December 2019, 17,304 students have benefitted from Wings to Fly. Of those, 82 percent have qualified to enter university, a significantly higher proportion than the national transition average of 21 percent.

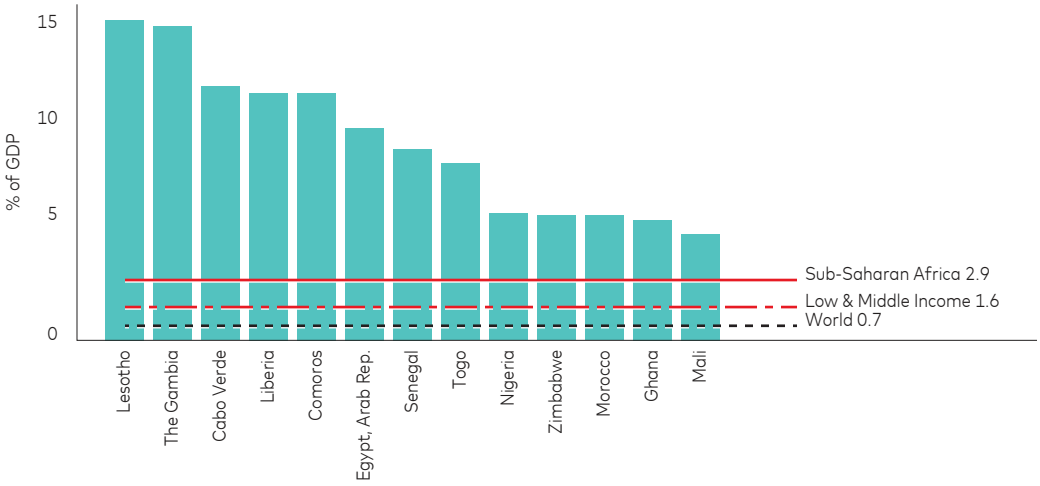
6.1.5 REMITTANCES TO SUB-SAHARAN AFRICA ARE A GROWING SOURCE OF EDUCATION FINANCE AT THE HOUSEHOLD LEVEL

Evidence suggests that remittances from family members living and working outside their country of origin can play a substantial role in supporting household investments in education. Based on a study of 18 countries in Sub-Saharan Africa and Asia, international remittances increased education spending by 35 percent on average.[544] In Africa, remittances have been associated with a range of positive impacts. For example, in Senegal and Kenya, there is evidence of higher household spending on education, and, in rural Morocco and Malawi, more years of completed schooling.[545]

In Sub-Saharan Africa, personal remittances received as a proportion of GDP (2.9 percent) far outstripped foreign direct investment (1.9 percent) in 2018.[546] In many countries, that proportion is much higher. There are six countries where remittance levels are between five and 10 percent of GDP, including Ghana, Nigeria, and Senegal; the figure is over 10 percent in Cabo Verde, Comoros, and Liberia, and over 15 percent in The Gambia and Lesotho.

FIGURE 6.4

PERSONAL REMITTANCES RECEIVED AS A PERCENTAGE OF GDP, SELECT COUNTRIES AND REGIONAL AVERAGES



Source: Personal Remittances, Received (World Bank Indicator) based on most recent available data from the World Bank database, accessed November 2019; World Development Indicators (World Bank staff estimates based on IMF balance of payments data, and World Bank and OECD GDP estimates).

BOX 6.2
PROMISING PRACTICE: REDUCING THE COST OF SENDING REMITTANCES

Reducing the cost of sending remittances has the potential to unlock additional finance for household investment in education.

Sub-Saharan Africa continues to have the highest average cost of sending remittances, at about nine percent. Transfers between countries on the continent can be even higher. For example, in 2018, sending money from Angola to Namibia cost 22.4 percent, and from South Africa to Zambia, it cost 18 percent on average.[547]

In line with SDG indicators, reducing the cost of sending remittances is core to leveraging them for development purposes. Although there has been a rapid rise in the use of fintech solutions for remittance services, they continue to largely exclude unbanked customers who continue to use informal channels.[548]

Given the significant role households play in financing education at the secondary level, a deepening digital remittances sector — if it can overcome regulatory and behavioural bottlenecks — has the potential to disrupt the market and unlock additional finance for investment in education.[549]

A woman makes a deposit to her savings group in Mwanza, Tanzania.

6.2 PROMISING PRACTICES TO IMPROVE FINANCING OF SECONDARY EDUCATION

Ensuring that all young people in Sub-Saharan Africa have access to secondary education that prepares them for the future of work, as outlined in the previous chapters, will require substantial resources. In an analysis completed for this report, the Education Commission has projected the costs of financing universal secondary enrolment for Sub-Saharan African countries by income levels. That analysis is modelled on country trajectories of the top 25 percent improvers in Sub-Saharan Africa over the last decade and indicates the investment needed to achieve full secondary enrolment and completion by 2050, in US$ billions and as a percentage of GDP.[550] According to the Education Commission's projected data, resources spent on both lower and upper secondary education for the whole Sub-Saharan African region would need to increase from 2.1 percent of GDP in 2015 to 4.5 percent of GDP in 2050 — or from US$25 billion to US$175 billion. The most significant increase as a percent of GDP would need to occur in low-income countries, from 1.9 percent in 2015 to 5.5 percent in 2050.

TABLE 6.2
COST OF FINANCING THE VISION SCENARIO BY COUNTRY LEVEL OF INCOME, IN PERCENT GDP AND US$ BILLIONS

	SUB-SAHARAN AFRICA LOW INCOME COUNTRIES			SUB-SAHARAN AFRICA LOWER-MIDDLE INCOME COUNTRIES			SUB-SAHARAN AFRICA UPPER-MIDDLE INCOME COUNTRIES			SUB-SAHARAN AFRICA		
COSTS, US$ BILLIONS	**2015**	**2030**	**2050**	**2015**	**2030**	**2050**	**2015**	**2030**	**2050**	**2015**	**2030**	**2050**
LOWER SECONDARY TOTAL	**2.8**	**19.4**	**40.4**	**7.2**	**21.8**	**37.8**	**3.5**	**7.4**	**10.4**	**13.5**	**48.6**	**88.6**
% GDP	1.1%	2.8%	2.8%	1.3%	1.9%	1.7%	1.4%	1.3%	1.1%	1.2%	2.3%	2.2%
Teacher salary	2.1	8.9	19.6	5.6	11.0	19.3	2.7	4.2	6.0	10.4	24.2	44.9
Non-salary recurrent	0.4	4.8	10.6	0.8	5.9	10.4	0.6	2.3	3.2	1.8	13.0	24.2
School construction	0.2	2.9	4.7	0.5	2.4	3.8	0.1	0.4	0.4	0.8	5.7	9.0
Other permanent school capital	0.1	1.9	3.1	0.3	1.6	2.5	0.1	0.3	0.3	0.5	3.7	5.9
Support for marginalized students	0.0	1.0	2.4	0.0	0.9	1.7	0.0	0.2	0.5	0.0	2.0	4.5
UPPER SECONDARY TOTAL	**1.6**	**10.8**	**31.4**	**5.8**	**22.7**	**43.6**	**4.2**	**7.9**	**11.5**	**11.7**	**41.3**	**86.5**
% GDP	0.7%	1.9%	2.7%	0.9%	1.6%	1.9%	1.2%	1.2%	1.1%	0.8%	1.7%	2.2%
Teacher salary	1.1	4.7	14.0	4.6	10.9	21.6	3.4	4.5	6.6	9.1	20.2	42.2
Non-salary recurrent	0.4	2.5	7.5	0.6	5.9	11.6	0.7	2.4	3.5	1.6	10.9	22.7
School construction	0.1	1.9	4.5	0.4	2.8	4.4	0.1	0.5	0.5	0.6	5.2	9.3
Other permanent school capital	0.1	1.3	2.9	0.3	1.9	2.9	0.1	0.3	0.3	0.4	3.4	6.2
Support for marginalized students	0.0	0.4	2.4	0.0	1.1	3.1	0.0	0.1	0.6	0.0	1.6	6.0
TOTAL SECONDARY COST	**4.4**	**30.2**	**71.7**	**13.0**	**44.5**	**81.4**	**7.7**	**15.2**	**21.9**	**25.1**	**89.9**	**175.0**
% GDP	1.9%	4.7%	5.5%	2.2%	3.5%	3.6%	2.6%	2.5%	2.2%	2.1%	4.0%	4.5%

Source: Education Commission, "Costing and Financing Secondary Education," Background Memo on Education Commission Costing Model Results Developed for Mastercard Foundation Report, Secondary Education in Africa: Preparing Youth for the Future of Work (New York: The Education Commission, May 2019), p. 14–15.

Business-as-usual in financing secondary education in Africa will no longer suffice. Three approaches to making additional resources available to secondary education are discussed below:

- expanding innovative financing mechanisms
- improving efficiency of current spending
- increasing domestic resource mobilization for secondary education

6.2.1 EXPANDING INNOVATIVE FINANCING MECHANISMS

A growing number of alternative and innovative education financing mechanisms are emerging across Africa to marshal significant new resources to the sector. While those innovative financing mechanisms are at a nascent stage, they offer the promise of generating new resources for a sector that has largely exhausted the breadth of traditional financing. Those mechanisms tend to bring together private-sector financing with philanthropic and government funding to make new resources available for education expansion. They are not directed to secondary education per se, but rather available to the education sector more broadly. Many of these mechanisms employ results-based financing approaches and rely on non-state actors for implementation.

Early experience with results-based financing through social and development impact bonds[551] suggests an opportunity to crowd in additional private-sector funds and scale up effective models that support equity and quality. India has been the primary country for experimentation with that new form of financing. The first development impact bond for education, the Educate Girls Development Impact Bond, was undertaken in India in 2015. A second one, Quality Education India Development Impact Bond, has also been initiated and will focus on a range of interventions to improve learning outcomes. South Africa is also experimenting with that new financing mechanism. A social impact bond called the South Africa Early Childhood Development (ECD) Impact Bond has been established to drive early childhood attendance and retention in Western Cape, South Africa.[552] Though not specific to formal education, a pilot social impact bond called Inclusive Youth Employment Pay for Performance Platform, also in South Africa,

BOX 6.3

PROMISING PATHWAY: THE EDUCATE GIRLS DEVELOPMENT IMPACT BOND, INDIA

The Educate Girls Development Impact Bond, launched in India as the world's first development impact bond in education in 2015, has demonstrated strong outcomes in terms of both learning gains and enrolment. UBS Optimus Foundation acted as the investor, financing project implementation by Educate Girls, an NGO. Children's Investment Fund Foundation agreed to pay for educational outcomes. Educate Girls addressed educational inequities in one district in Rajasthan by encouraging families to send their children to school and by improving the quality of the instruction they receive once enrolled. They trained community volunteers to make door-to-door household visits and to deliver a child-friendly supplementary curriculum in classrooms to improve basic reading and math skills. Learning gains, which accounted for 80 percent of the final payments, were measured in a randomized controlled trial including assessments of basic literacy and math skills. Enrolment of out-of-school girls, which accounted for 20 percent of the payments, was calculated as the percentage of eligible out-of-school girls in treatment villages enrolled by the end of the program. The effects of Educate Girls' program on learning gains were large and statistically significant over the three-year program: students in Educate Girls schools gained, on average, 28 percent more than students in control schools.[554]

has succeeded in ensuring jobs for 600 youth. Those experiments, while not directly focused on secondary education, demonstrate the potential to expand that innovative financing mechanism in Africa, to experiment with alternative delivery models, and to drive a broader set of outcomes for the secondary education sector.[553]

Additional efforts are underway to expand the resources available to national education systems in Africa in innovative ways:

- An **Education Outcomes Fund** (EOF) for Africa and the Middle East is being proposed to crowd in an additional US$1 billion in financing for the education sector. The Education Commission and the Global Steering Group for Impact Investment are leading that effort. The Fund aims to pool public funds, aid, philanthropy, and corporate social responsibility contributions to support innovative education and youth employment programs. Private investors and delivery organizations will be repaid and given a return, if objectives are met. The Fund will focus on driving access, equity, learning, and the promotion of 21st-century skills needed for work. The EOF is exploring a model with Ghana that would focus on getting out-of-school youth back to school and improving learning outcomes for students in school.[555] If successful, the Fund has the potential to deliver significant new resources to education. At the same time, concerns have been raised that the EOF will only be available to non-state actors. Critics have suggested that the EOF should be agnostic about whether providers are private or public, as long as they are able to deliver results.[556]

- The **International Finance Facility for Education** was recently launched in order to mobilize new financing for education and to accelerate progress towards SDG 4, based on a recommendation by the Education Commission. The Finance Facility is designed to work alongside national efforts to expand tax revenues and increase domestic investments in education. It will leverage more than $10 billion in new financing in its initial phase through guarantees provided by contributing countries that enable multilateral development banks to increase the amount and affordability of lending for education. The Facility will complement current education finance initiatives, enhancing World Bank and regional development bank financing for low- and lower-middle-income countries, and will work alongside international actors including the Global Partnership for Education and the Education Cannot Wait Fund, UN agencies, bilateral donors, and charities.[557]

- A new effort is under development to establish an **Africa Education Fund** (AEF) to target additional financing for STEM and TVET on the continent. The AEF is an initiative of the African Union, the African Development Bank, and the Association for the Development of Education in Africa. It is an African initiative — designed, owned, and led by Africans. It seeks to make available up to $1 billion over the next 10 years to support countries in generating additional financing for STEM and TVET in their countries. The Government of Ghana has provided an initial contribution of $2 million to support operational costs as the AEF develops, alongside initial investment by the Government of Japan.[558]

6.2.2 IMPROVING EFFICIENCY OF CURRENT EDUCATION SPENDING

While more resources are needed in secondary education, much more can be done by using existing resources more efficiently. It is estimated that in low- and middle-income countries, on average, two percent of a country's GDP is spent each year on education costs that do not lead to learning, largely because of inadequate teaching or teacher absenteeism. In low-income countries, that can amount to half of the entire education budget.[559] A 2014 paper by the IMF calculated that in developing countries, more efficient spending in secondary education, with a greater share of budgeted resources actually being spent as planned, could increase average enrolment rates by 36 percent.[560]

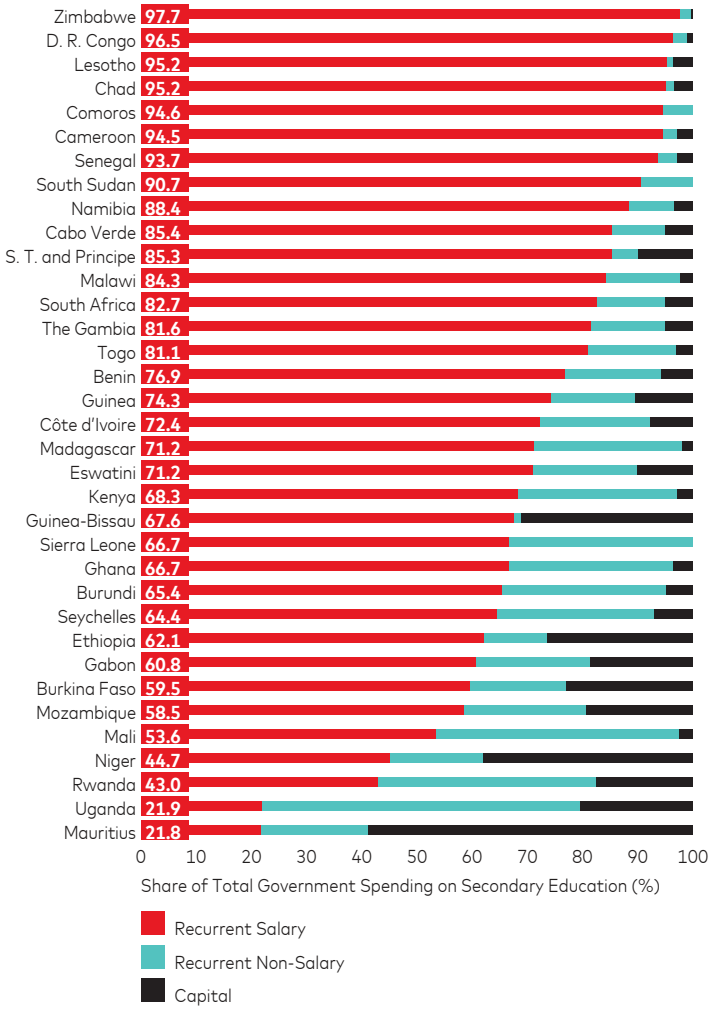
Some of the key areas to unlock resources through improved efficiencies include:

- improving teacher deployment and utilization;
- reducing unit costs of secondary education delivery;
- addressing high repetition and low learning, particularly in primary; and
- improving education system management.

A student takes notes in an entrepreneurship class in Uganda as part of the Mastercard Foundation partnership with STiR Education to improve learning through classroom innovation.

Improving teacher deployment and utilization, and reducing absenteeism, can free up existing resources to expand access and improve the quality of secondary education. A significant share of secondary school spending is allocated to salaries in many Sub-Saharan African countries (see Figure 6.5). Over the period from 2010 to 2016, 35 out of 49 Sub-Saharan African countries had data breaking down the composition of spending by recurrent (salary and non-salary) and capital spending. The data indicates that for 31 out of those 35 countries, the majority of secondary school spending goes towards salaries.[561]

FIGURE 6.5
PROPORTION OF SPENDING BETWEEN RECURRENT AND CAPITAL SPENDING, LATEST YEAR (2010–2016)



Source: Asma Zubairi and Pauline Rose, "Equitable Financing of Secondary Education in Sub-Saharan Africa, Secondary Education in Africa Background Report" (Toronto: Mastercard Foundation, February 2019), p. 23, drawing on data from the UNESCO Institute for Statistics (UNESCO-UIS) database, accessed October 2018.

The set of factors that keep teachers out of the classroom must be systematically addressed

A study completed for this report on efficiency and effectiveness of secondary education in Sub-Saharan Africa identified several teacher-related factors associated with efficient and effective schools.[562] Using case examples from Malawi and Uganda, the study found very wide disparities across schools in teacher utilization, with some schools having student-teacher ratios (STRs) below 15:1 and others having high STRs above 50:1. The study also found teacher per class ratios in secondary schools ranging from under 2:1 to over 5:1, indicating that when one teacher is teaching, several others are occupied with other activities. The study calls for greater efforts and incentives to generate efficiency gains such as managing learner/teacher ratios, increasing teacher classroom time, smaller class sizes for main subjects, ensuring more even teacher deployment within and between schools, and higher salaries linked to experience.

Reducing teacher absenteeism and the performance of administrative tasks can have a significant impact on the efficiency of the system. A survey in seven Sub-Saharan African countries found that on average, primary school students received less than 2.5 hours of teaching per day, less than half the intended instructional time.[563] The set of factors that keep teachers out of the classroom must be systematically addressed. For example, in The Gambia, the teachers' union worked with the government to enable teachers to be paid through their own accounts in The Gambia Teachers' Union Co-operative Credit Union, so they do not have to travel long distances to urban areas to get their salaries. Reducing the time teachers spend on administrative tasks will also help free them up to teach.[564]

Many examples of scalable good practice to improve teacher deployment and utilization have been identified. Those good practices are often led by teachers themselves or by deploying technologies to help teachers spend more time teaching while improving monitoring and accountability. Tackling those issues will require fostering positive collaboration between teachers, their unions, and policymakers to help ensure that root causes are addressed and that solutions stick.

BOX 6.4
PROMISING PRACTICE: TEACHER-LED ACCOUNTABILITY IN UGANDA[565]

In 2013, the Uganda National Teachers' Union collaborated with a group of civil society organizations to launch the Quality Public Education Campaign. The campaign empowered teachers across the country to use data to draw attention to mismanagement and to demand greater accountability and efficiency in national budgeting. The campaign unearthed evidence that a large share of Uganda's education budget was spent on "ghost teachers," renovating government buildings, or paying for the salaries and expenses of government officials. The campaign helped publicize the severe inadequacy of school facilities: in some cases, over 100 students were in classrooms meant for 40–50 students, and over one-third of learners were attending classes under trees. Through the campaign, union leaders received training on budget analysis, data collection and dissemination, and awareness-raising activities. Since its launch, school administrators have publicly shared payroll information to help address the problem of "ghost teachers," and the share of grants reaching their intended schools has increased.

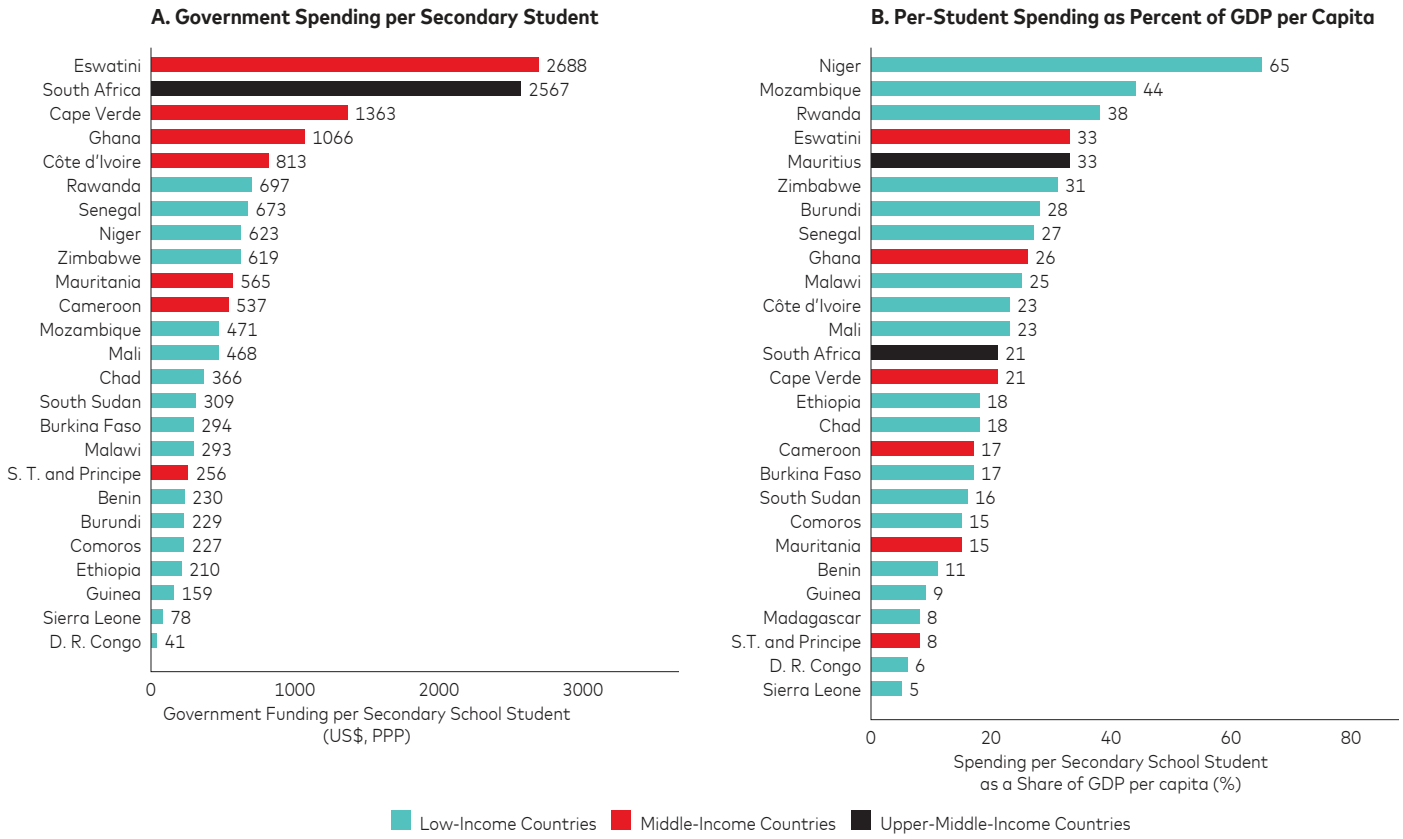
A more controversial approach has involved experiments with pay-for-performance contracts for teachers. A recent study reporting on the outcomes of an experiment with pay-for-performance (P4P) contracts for primary teachers in Rwanda suggests that well-designed P4P approaches can contribute to improving quality without increasing costs. Researchers partnered with the Rwanda Education Board to compare the effects of two ways of increasing primary teacher salaries with the same total costs to government: a P4P contract that paid a bonus to the top 20 percent of teachers in each district as measured by student test scores, and a fixed-wage contract. Preliminary results suggest that P4P contracts were effective in improving teaching quality and student learning. Most of the impact was driven by increased effort, as the contracts incentivized teachers to perform better in terms of classroom presence and conduct. Some impact was also driven by recruitment, as P4P contracts attracted somewhat different teachers. P4P was also popular among surveyed teachers, with 78 percent having a favourable opinion of providing bonus payments on the basis of objective measures of performance.[566] However, P4Ps are controversial. Those mechanisms can penalize teachers working with harder-to-serve populations. Additional concerns expressed include rewarding teachers for what should be part of their job, the ability to objectively measure performance against targets, focusing teachers on a narrow set of performance indicators versus a broader conception of their roles and responsibilities, and the potential to undermine teachers' intrinsic motivation.[567]

REDUCING UNIT COSTS OF SECONDARY EDUCATION DELIVERY

High unit costs pose a significant barrier to making secondary education universally accessible.[568] Most secondary school systems in Sub-Saharan Africa continue to be marked by a legacy of elitist systems with limited access and high costs per student. The Education Commission estimates that, globally, low-income countries will need to spend US$368 per secondary student to achieve the Sustainable Development Goals by 2030.[569] Nine countries in Africa with data are above that benchmark (see Figure 6.6). Two countries, Sierra Leone and D.R. Congo, are well below that benchmark, at US$78 and US$41, respectively.[570] While secondary education is more costly than primary education, one study estimates that universal access to secondary education cannot be achieved in countries where the ratio of spending on secondary education to primary is more than 3:1.[571] Ghana and Mozambique spend three times or more on a secondary student than a primary one, while Rwanda (at US$703 per secondary student, compared to US$103 per primary pupil), spends seven times as much.[572]

FIGURE 6.6
SUB-SAHARAN AFRICAN GOVERNMENTS VARY IN THE AMOUNT SPENT PER SECONDARY-SCHOOL-AGED STUDENT

Per-student spending in US$ Public Private Partnership and as a percent of GDP per capita over 2012–17 (latest year)



Source: Asma Zubairi and Pauline Rose, "Equitable Financing of Secondary Education in Sub-Saharan Africa, Secondary Education in Africa Background Report" (Toronto: Mastercard Foundation, February 2019), p. 21, drawing on data from the UNESCO Institute for Statistics (UNESCO-UIS) database, accessed June 2018.

Downsizing or eliminating the two-tier secondary school system can free up considerable resources. While boarding schools have several positive aspects, such as encouraging social cohesion among diverse ethnic and social groups, they are expensive for both households and education systems and not necessarily the most cost-effective option for secondary education delivery.[573] Downsizing or eliminating the two-tier secondary school system, in which an elite tier of secondary schools consumes the majority of resources while those secondary schools more widely used by the poor are greatly under-resourced, can decrease unit costs for secondary education delivery and free up considerable resources for expansion and improved quality of the system.

Downsizing or eliminating the two-tier secondary school system ... can free up considerable resources ...

Including lower secondary education as part of an extended basic education cycle can also generate cost savings. In many countries, merging primary and lower secondary education into a good-quality extended basic education of nine years for all can be an effective approach.[574] It can improve pupil/teacher ratios, reduce construction costs, and enhance equity by reducing the commuting distance to lower secondary education for many rural children. That approach requires streamlining the curriculum, however, to limit the number of core subjects and increasing the number of polyvalent teachers (those who can teach several subjects) at the lower secondary education level. In small lower secondary schools, the use of polyvalent teachers could generate cost savings similar to the use of multi-grade teachers in primary schools.

ADDRESSING HIGH REPETITION AND LOW LEARNING, PARTICULARLY IN PRIMARY

High repetition and low learning in primary education creates inefficiencies at the secondary level.[575] If students progress to lower secondary education without mastering basic literacy and numeracy, remedial programs will be needed in secondary, where the cost of educating students is much higher, given specialization of teachers, smaller class sizes, and the cost of materials, laboratories, and other facilities.[576] Likewise, poor quality or ineffective provision of secondary education, leading to poor learning outcomes, grade repetition, and dropout, is also a huge source of waste. Investing in preventing dropout from and improving the quality of primary school will contribute to more well-prepared students transitioning to secondary education with stronger foundational skills, making spending on secondary education teaching and learning more efficient.

IMPROVING EDUCATION SYSTEM MANAGEMENT

Supporting greater school-level autonomy allows teachers and schools greater freedom to allocate resources, innovate, and tailor approaches to local needs. School-based management approaches are one mechanism for providing that level of autonomy by devolving a range of powers and resource control to the school level. While evidence is limited, the effectiveness of those types of reforms likely depends heavily on the strength of capacity at the school level. Encouraging teachers' autonomy works best when teachers are well trained, professionalized, and well-supported. In many education systems, however, teachers have low social status, low motivation and morale, and poor professional performance and outcomes, making effective delegation to those levels challenging without complementary reforms.[577]

Improving efficiency and spending performance requires cutting waste and cracking down on the inefficiency and corruption that inhibit students from learning. Weak financial management impedes good planning and efficient resource allocation and makes it possible for money to leak as it flows through the system. In fragile contexts where governance and transparency are relatively poor, waste through inefficient management and corruption can be particularly severe. Responses to a global consultation by the Education Commission found that inefficiency and misuse of resources were among the largest barriers to improvements in education systems.[578]

BOX 6.5
PROMISING PRACTICE: IMPROVING THE EFFICIENCY OF SCHOOL FEE PAYMENTS

Digitalization of school fee payments can have beneficial effects for all stakeholders in the system. In Côte d'Ivoire, a public-private partnership first launched in 2011 facilitated the annual school registration fee payment by mobile money for 99 percent of secondary school students by 2015.

For students and parents, benefits include: reduced time, cost, and security concerns around making cash payments; increased transparency in terms of pricing; increased ease of payment; and increased confidence in proof of payment receipts. For government, the system helps: create more reliable and complete student record databases; remove cash handling costs and reduce security concerns and administrative burdens; improve payment process efficiency and reduce leakage of funds; and increase the transparency of fund management.

Secondary schools benefit from earlier payments, helping school administrators to better manage funding and budgets and increase fee collection, thus increasing overall budgets. That also provides real-time access to the government student record database.

Critical factors for success include: the commitment of the Ministry of National and Technical Education in investing in digital platforms and capabilities; the level of collaboration between the mobile money providers to offer a universal and accessible payment solution with a streamlined user experience; and successful implementation of an attractive and sustainable business model for all parties.[579] In general, improved access to relevant financial services for low-income households, including mobile money tools and savings groups, can help families manage education-related costs more easily.[580]

Addressing corruption can ensure resources earmarked for schools reach them. Public expenditure tracking surveys have found that up to a quarter — and in extreme cases, up to half — of funds earmarked for public schools do not reach them.[581] Cracking down on corruption requires commitment from senior leaders to implement and enforce the standards and procedures that many countries already have in place. These include unannounced inspection visits, tracking resources through financial disclosures and audits, and enforcing rules regarding recruitment and promotion. Establishing reliable Education Management Information Systems is also key. For example, using information technology, Ghana mapped all secondary schools using basic data to inform decisions on resource and teacher allocations.[582] The real-time monitoring capability enables close supervision of construction progress and high cost savings from reduced leakage of funds. Parents, teachers, communities, and civil society also play a key role in tackling corruption and waste. Governments should consider whether appropriate mechanisms and safeguards are in place for those wishing to report misallocation or misappropriation of resources.

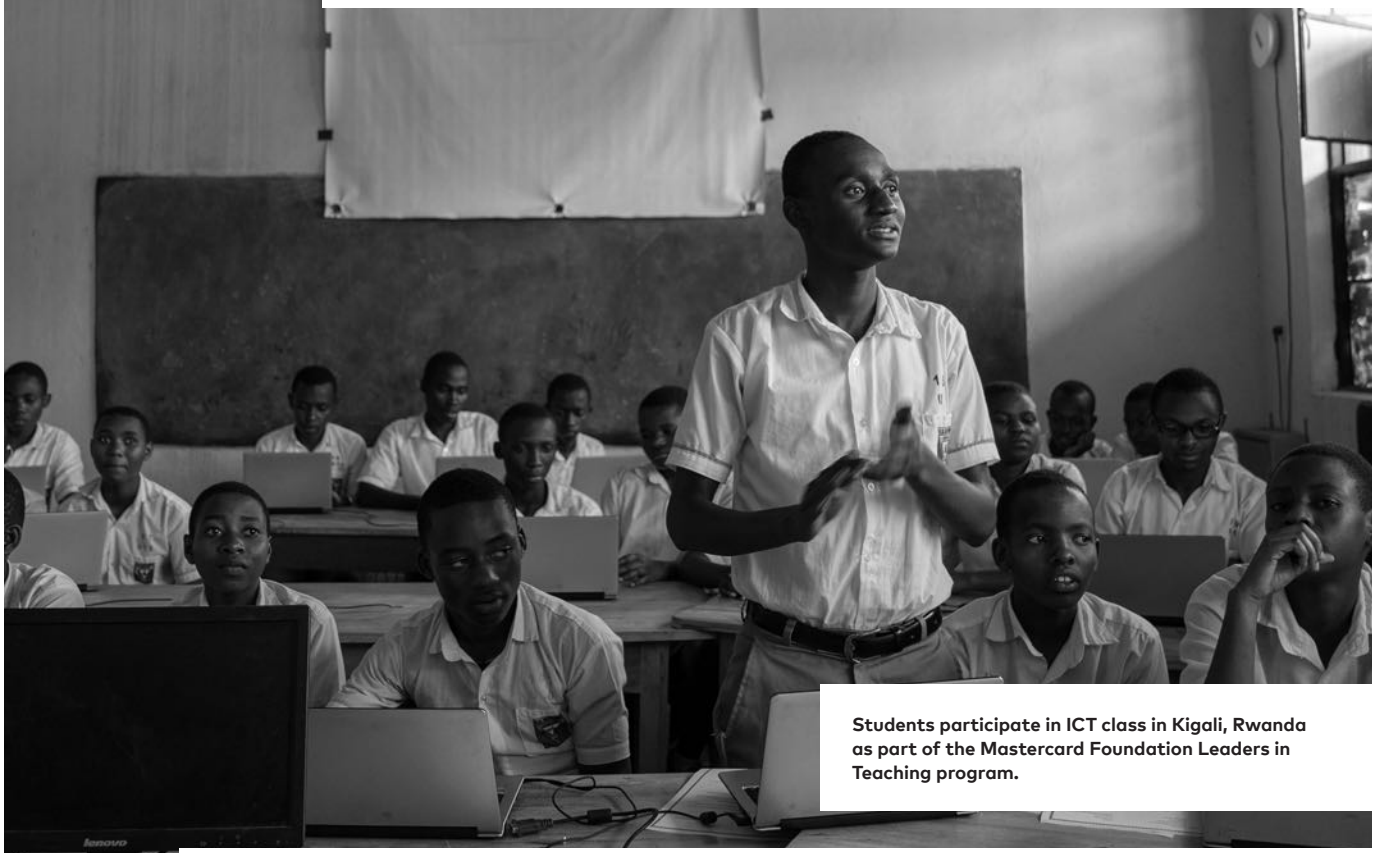
Cutting the cost of learning materials and using them effectively will generate efficiencies. Books are among the most effective investments to increase learning outcomes. In many countries, however, textbooks are underfunded, priced too high, unavailable to many students, or poorly used: in rural schools in Benin and Namibia, one textbook is shared between 10 primary school students.[583] In many cases, costs are driven up and quality compromised by uncompetitive procurement, bribery by suppliers, theft, piracy, and copyright infringement. Opening up the bidding process can lower costs, as can the development of open educational resources.

6.2.3 INCREASING DOMESTIC RESOURCE MOBILIZATION FOR SECONDARY EDUCATION

Improving fiscal space for secondary education requires strengthening and improving tax collection, as well as focusing on transforming the structure of the economy overall. Currently, the tax base in Sub-Saharan Africa remains low compared with more developed regions. European and North American countries raise 43 percent of GDP in domestic revenues, on average. In low-income countries, domestic revenue only averages 14 percent of GDP, and in lower-middle-income countries, about 18 percent.[584] Among 67 countries analyzed in the UNESCO Global Education Monitoring Report (GEMR), 37 raised insufficient revenue and committed less than 20 percent of government budgets to education.[585] However, with additional tax efforts such as making tax collection more efficient, limiting tax exemptions, fighting tax evasion, diversifying the tax base, and strengthening tax systems, those 67 countries could have raised an additional US$153 billion for education by 2015.

6.3 STRENGTHENING EQUITY-BASED FINANCING

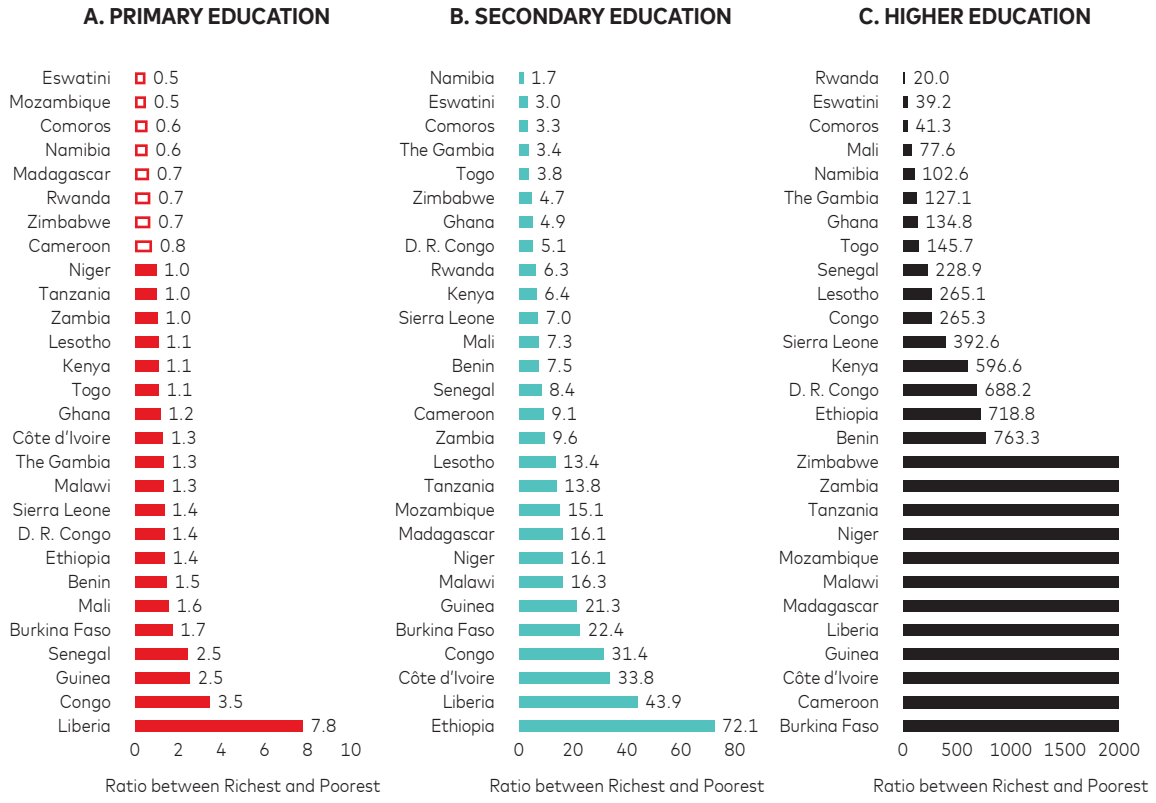
A disproportionate amount of government resources goes to a small number of better-off students at every level of the education system. A small proportion of the population attends post-secondary schooling. Further, less than one percent of the poorest half of the population reaches that level in many Sub-Saharan African countries.[586] There is great variation in levels of inequity in public expenditure across countries. In Ethiopia, for example, the richest households receive 72 times more than the poorest households in government spending on secondary education. At the other end of the spectrum are countries like Namibia and Eswatini, where inequities remain less extreme. In part, that is due to the higher rates of primary completion among disadvantaged children. In Namibia, for example, 80 percent of the most disadvantaged children complete primary school, and the majority of youth transition to lower secondary.[587]



Students participate in ICT class in Kigali, Rwanda as part of the Mastercard Foundation Leaders in Teaching program.

FIGURE 6.7

PUBLIC EXPENDITURE SPENT ON CHILDREN FROM THE RICHEST HOUSEHOLDS AS A RATIO OF WHAT IS SPENT ON CHILDREN FROM THE POOREST HOUSEHOLDS, BY LEVEL



Source: Sonia Ilie and Pauline Rose, "Who Benefits from Public Spending on Higher Education in South Asia and Sub-Saharan Africa?," *Compare: A Journal of Comparative and International Education* 48, no. 4 (2018): 630–47, p. 638, drawing on data from UIS and DHS 2016.

African governments have made great advances in expanding enrolment in lower secondary education, in many cases by removing school fees. Yet, those policies have not sufficiently reached low-income households, rural populations, girls, and other excluded groups because many additional costs and barriers to secondary education exist. There is a need to redistribute education resources to ensure a greater proportion of public resources serve the poorest students at the lowest levels of the education system, while crowding in additional resources to ensure adequate resourcing of education at higher levels of the system.

Fee-free policies vary widely across countries.[588] Policy mapping undertaken for this report identified 17 countries currently providing fee-free secondary education (for either lower or both lower and upper levels) and one (Botswana), which has rescinded that policy.[589] The details vary widely: legislation in Chad and Madagascar provides for seven years of fee-free secondary education, while in Zambia, two years of fee-free secondary education are offered.[590] The varying extent to which indirect costs are covered by the fee-free policy in different countries can have significant effects on its success in terms of promoting access to secondary education.

The evidence on the introduction of fee-free secondary education on marginalized groups is mixed.[591] In Kenya, for instance, completion rates at the lower secondary level increased from 38 percent in 2003 to 71 percent in 2014. That disguises the uneven progress between groups, however, as the proportion of rich, urban boys completing lower secondary rose from 57 percent to 93 percent. The proportion of girls from poor rural households completing lower secondary education rose from 13 percent to 42 percent over the same period — an improvement — but girls remain less than half as likely to complete lower secondary.[592]

Because poor and marginalized students often do not complete primary education, they do not benefit from policies offering free lower secondary education.

While those policies represent an important step forward, they are insufficient to ensure access to and completion of secondary education for disadvantaged groups. Because poor and marginalized students often do not complete primary education, they do not benefit from policies offering free lower secondary education. Those who do transition out of primary often cannot afford lower secondary, even if tuition is free, due to other direct and indirect costs including school-related fees (such as parent-teacher association fees), uniforms, textbooks, and transportation. There is also higher value attached to their time, particularly for the poorest households, given that these youth could be working.[593]

Research has demonstrated that equity-based funding formulas, targeted needs-based scholarships, and cash transfers for the poor can remove barriers to secondary education. To be effective, those tools must be informed by strong data, policies, and community involvement to ensure that funds are targeted to those most in need.

EQUITY-BASED FUNDING FORMULAS: Funding formulas to redistribute public education resources to the most disadvantaged groups — by poverty, geographic region, or schools — can be effective in redressing financial barriers to education and levelling the playing field. A number of largely middle-income countries have successfully implemented equity-oriented funding formulas.[594] In South Africa, a program targeted 40 percent of public-school students to benefit from the abolition of primary and secondary school fees. Schools were first divided into national quintiles using a score based on the poverty of the surrounding community. Then, schools located in communities in the poorest two quintiles eliminated school fees starting in 2007. That geographic method of targeting aimed to avoid the potential problems associated with household targeting, such as high costs of identifying beneficiaries and potential intra-community conflict. It has been found that the program increased secondary school enrolment by almost two percentage points and, in the poorest quintile, enrolment increased by almost 3.5 percentage points.[595]

Needs-based financing models have also been adopted by Rwanda, Tanzania, and Zimbabwe. For example, in 2006, Rwanda introduced an allocation formula for block grants to local governments, with a positive effect on the equitable distribution of resources allocated to education. The formula used was weighted for population, poverty, area, and an estimated financing gap between revenue collection and the costs of administration.[596] As noted in Chapter Five, Sierra Leone and Senegal also offer examples of countries that have allocated education resources based on measure of need at the district level.

CASH TRANSFERS TARGETING POOR HOUSEHOLDS: Cash transfer programs, as demonstrated by two decades of experience across dozens of countries, are highly effective in encouraging youth from low-income households to attend and stay in school. The number of cash transfer programs worldwide has expanded rapidly, and some of the programs with the largest coverage are now in Sub-Saharan Africa.[597] The funds for these do not usually come directly from education budgets, although evidence demonstrates that they can play a role in increasing enrolment and attendance.[598]

Recent evidence regarding cash transfers and capitation grants to schools from a conflict-affected area in South Sudan has also shown a major impact. All female students in the final four grades of primary (P5–P8) and in all grades of secondary school (S1–S4) are eligible for cash transfers, which are transferred directly to the students at school. The value of the cash transfer received in 2016 was US$25, equivalent to just over 10 percent of GDP per capita that year. Schools that received capitation grants combined with targeted cash transfers increased their female enrolment share by around two percent. The combination of cash transfers and capitation grants also seemed to lead to an increase in average school attendance, despite the prevalence of ongoing conflict.[599] Reports have called for more support for secondary school girls through additional interventions, however, due to the high opportunity costs of education for girls and increased pressure to drop out.[600]

Given that resources in cash transfer programs are mainly directed at addressing poverty-related constraints to accessing education, their effect on learning outcomes is often less apparent.[601] Thus, those programs should be combined with efforts to enhance quality.

Students in science class in Nairobi, Kenya as part of the Mastercard Foundation partnership with Global E-Schools and Communities Initiative to improve student learning in science, math, and English.

BOX 6.6
PROMISING PRACTICE:
LIVELIHOOD EMPOWERMENT AGAINST POVERTY PROGRAM, GHANA

One of the largest cash transfer programs in Sub-Saharan Africa is the Livelihood Empowerment Against Poverty (LEAP) program in Ghana. The program provides cash and health insurance to extremely poor households across Ghana, with targeting based on poverty and having a household member in at least one of three demographic categories: an orphaned or vulnerable child, a poor older person, or a person with an extreme disability who is unable to work. Initial selection is done through a community-based process and is verified centrally. An evaluation found that among students between the ages of five and 17, LEAP reduced the likelihood of missing school or repeating a grade. Those findings are particularly important for the period of transition between primary and secondary school, where dropout rates rise sharply. When estimating the impact of LEAP on older children aged 13–17, the evaluation finds strong positive impacts on both enrolment and reduction in grade repetition.[602]

A student in math class in Uganda as part of the Mastercard Foundation partnership with STiR Education to improve learning through classroom innovation.

BURSARIES AND NEEDS-BASED SCHOLARSHIPS: Bursaries and needs-based scholarships are a powerful way to boost enrolment and learning. There are many positive examples of targeted support to students, both public and private, addressing one or more dimensions of marginalization such as poverty or gender. Evidence suggests that targeted approaches can be an effective way to channel resources to the most marginalized children and youth to increase secondary school outcomes.[603]

One longitudinal study in Ghana in 2008 tracked 2,064 Ghanaian students who were admitted to a specific school but could not immediately enrol, in most cases due to lack of funds, and who were awarded a secondary school scholarship through a lottery process. It found that scholarship winners: were 55 percent more likely to complete secondary school than students who did not get the scholarship; obtained 1.3 more years of secondary schooling; and scored higher on reading and mathematics tests.[604]

Evidence suggests that targeted approaches can be an effective way to channel resources to the most marginalized children and youth to increase secondary school outcomes.

The non-governmental organization CAMFED provides financial support targeted towards girls in some of the most deprived regions of five Sub-Saharan African countries. The program supports girls with school fees, uniforms, books, pens, boarding fees, and disability aids. Currently, CAMFED supports 153 districts in Ghana, Malawi, Tanzania, Zambia, and Zimbabwe and — to date — a total of 309,115 girls have been supported with secondary school scholarships to attend government schools.[605] A recent evaluation of CAMFED's program in Tanzania illustrates its positive effect on retention and learning for some of the most marginalized girls. For instance, girls receiving CAMFED support were more likely to stay in school and almost tripled their scores on the learning assessment from 11 to 28 points. The analysis found that while the most advantaged girls receiving support improved their mathematics scores by 15 points, the most disadvantaged girls improved their math scores by 17 points.[606] The combination of bursaries for the most marginalized girls — combined with other interventions such as community-based teaching assistants who helped with formal study and self-confidence-building activities — shows that while it might cost more to reach the most marginalized at the secondary level, it is also cost-effective, equivalent to two additional years of school for every $100 spent.[607]

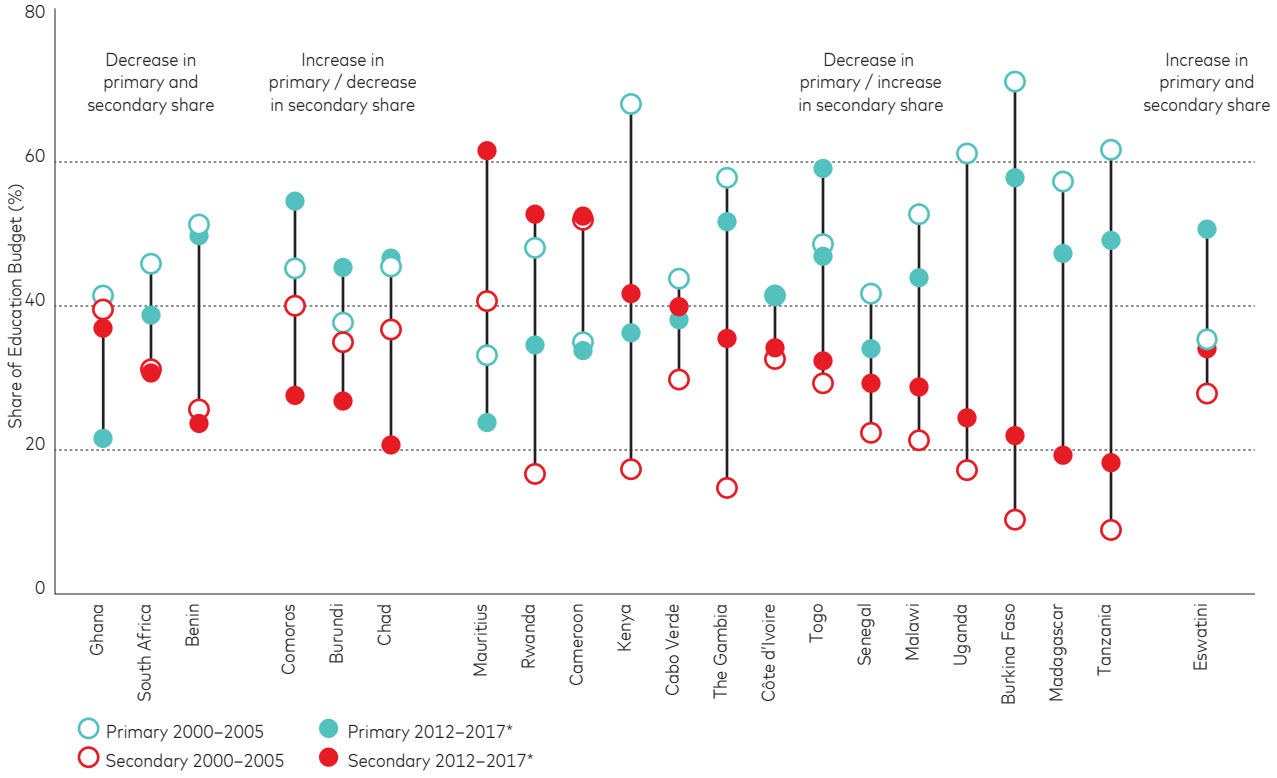
6.4 INVESTING IN SECONDARY EDUCATION SHOULD NOT BE AT THE EXPENSE OF PRIMARY

There are a number of interdependencies between levels of the education system, and it is important not to set up a false dilemma of trade-offs between them. Studies have demonstrated a strong relationship between enrolment in pre-primary education and completion of upper secondary education. Quality gaps at the primary level play out in secondary education systems contributing to repetition, dropout, and inefficiencies in the system. Tertiary systems train the teachers who will impact the next generation of students, and so on. It is therefore important to take a whole-system view and simultaneously work to improve access, quality, and relevance at all levels of the education system.

Many countries are shifting spending from primary to secondary education as a share of education budgets, despite challenges with primary completion and learning. While significant progress has been made in expanding enrolment at primary, access is not yet universal and serious learning challenges persist. As shown in Figure 6.8, of the 21 Sub-Saharan African countries with data across 2000–05 and 2012–17, 15 have increased the share spent on secondary education. Of those 15 countries, 14 have decreased their spending on primary education. That is problematic in a context where full primary enrolment and completion have not been achieved, and where low learning levels compromise the ability of secondary school students to learn.

FIGURE 6.8

CHANGE IN PRIMARY AND SECONDARY SPENDING AS A SHARE OF EDUCATION BUDGETS, 2005–2010 AND 2012–2017



Source: Asma Zubairi and Pauline Rose, "Equitable Financing of Secondary Education in Sub-Saharan Africa, Secondary Education in Africa Background Report" (Toronto: Mastercard Foundation, February 2019), p. 17, drawing on data from the UNESCO Institute for Statistics (UNESCO-UIS) database, accessed June 2018.

Arame Diop Gueye teaches a TVET class in Senegal as part of Education Development Centre's workforce readiness program, APTE, supported by Mastercard Foundation.

6.5 ENVISIONING FUTURE PROGRESS

Enormous efforts in terms of policy implementation and resource mobilization are still needed to improve access to relevant secondary education in Sub-Saharan Africa. To understand what could be achieved in a generation with increased investment and ambitious goals, the Education Commission completed a modelling exercise for this report. The model focuses exclusively on secondary education in Sub-Saharan Africa and uses the most recent data available to project lower and upper secondary enrolment and completion rates for Sub-Saharan Africa out to 2030 and to 2050, based on both current trends (a "business-as-usual" scenario) and added investment (a "vision" scenario).[608]

The Education Commission's projections are based on more than a decade of historical data on a full range of education indicators from international databases. The growth rates for the Vision Scenario assume that all Sub-Saharan African countries could improve their enrolment and completion rates at the same rate as the top 25 percent fastest improvers in the region over the last decade, while also targeting additional investments for programs and subsidies that reach the most marginalized.

Over the last decade, the five countries achieving the fastest growth in secondary school completion worldwide are all in Sub-Saharan Africa. The Vision Scenario is thus built on rates of improvement already being achieved in the region. Those five fastest improvers globally are Tanzania, Burundi, Burkina Faso, Niger, and Mauritania. Other Sub-Saharan African countries among the top 25 percent of fastest improvers are São Tomé and Principe, Côte d'Ivoire, and Sierra Leone. It is important to note that the potential for the fastest growth rates occurs when levels of access, completion, or learning are low; where enrolment and completion are near universal, rates of improvement are much harder to achieve.

Under a business-as-usual scenario, gross enrolment in lower secondary education in Sub-Saharan Africa is estimated to reach just 65 percent by 2030 and 72 percent by 2050. The figures for upper secondary are 43 percent and 56 percent respectively. Estimates for secondary completion are similarly low (see Table 6.3). The Education Commission's modelling implies that under current trends and without major changes in policies or funding, enrolment and completion would thus significantly lag behind other regions and fall far short of reaching Sustainable Development Goal 4 on education by 2030.[609] In comparison, gross enrolment ratios in lower-middle-income countries globally are 81 percent for lower secondary education and 57 percent for upper secondary education, indicating that Sub-Saharan Africa will need to do much more to raise its secondary education levels as part of a mandate to achieve middle-income status.[610]

TABLE 6.3
SCENARIOS FOR GROSS ENROLMENT AND COMPLETION AT THE SECONDARY LEVEL

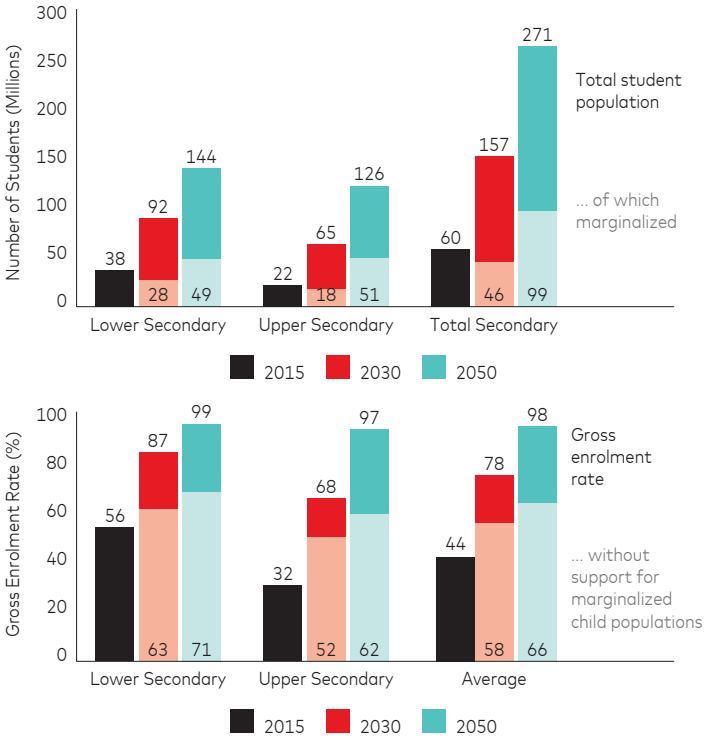
	LOWER SECONDARY		UPPER SECONDARY	
	2030	2050	2030	2050
BUSINESS AS USUAL				
Gross Enrolment	65	72	43	56
Completion	56	66	38	53
VISION				
Gross Enrolment	87	99	68	97
Completion	83	99	64	97

Source: Adapted from Education Commission, "Final Results and Discussion of Education Commission Costing Model Projections for Secondary Education in Africa Report, Background Paper for Secondary Education in Africa Report" (Toronto: Mastercard Foundation, May 2019), p. 4.

Yet if all countries in Sub-Saharan Africa improved at the rate of Sub-Saharan Africa's top 25 percent of performers and invested particularly in expanding access to the most marginalized, near-full enrolment and completion of both lower and upper secondary education could be achieved by 2050. Based on modelling under that Vision Scenario, countries in Sub-Saharan Africa can reach near-universal access to lower and upper secondary by 2050, up from 56 percent enrolment in lower secondary and 32 percent enrolment in upper secondary today. Near-universal completion rates at lower and upper secondary can also be reached by 2050 under that Vision Scenario, up from 43 percent completion of lower secondary and 27 percent completion of upper secondary today.[611]

The Vision Scenario shows that with subsidies targeted to the most marginalized, 100 million more students from poor households could access and complete secondary education by 2050. That represents well over a third of all youth who would access secondary by 2050 (271 million).[612] To achieve that, the model assumes that countries provide subsidies for marginalized pupils that go towards programs that remove barriers to education, such as transportation, school feeding, and free uniforms, as well as interventions and special programs to improve learning. The subsidies for those programs are estimated at 30 percent additional spending per pupil for lower secondary and 40 percent additional spending per pupil for upper secondary.[613] In many countries in Sub-Saharan Africa, youth living in extreme poverty make up a sizeable proportion of the secondary-school-age population, and those figures show that additional spending targeting the hardest-to-reach youth is critical to reach the Vision Scenario shown in Figure 6.9.

FIGURE 6.9
VISION SCENARIO: NUMBER OF PUPILS ESTIMATED TO BE ENROLLED (TOP) AND GROSS ENROLMENT RATE (BOTTOM) AT THE SECONDARY LEVEL, WITH AND WITHOUT ADDITIONAL SUBSIDIES FOR MARGINALIZED YOUTH POPULATIONS



Source: Adapted from Education Commission, "Final Results and Discussion of Education Commission Costing Model Projections for Secondary Education in Africa Report, Background Paper for Secondary Education in Africa Report" (Toronto: Mastercard Foundation, May 2019), p. 12.

Within a generation, the promise of secondary education could be extended to nearly all youth in Sub-Saharan Africa. That Vision Scenario should be considered in the context of the investments needed to change the growth trajectory. The Education Commission has projected the costs of financing universal secondary enrolment for Sub-Saharan African countries by country income levels in terms of both GDP and total US$. For that rate of progress to occur, resources spent for the whole Sub-Saharan African region would need to increase from 2.1 percent of GDP today to 4.5 percent of GDP for both lower and upper secondary education — from $25 billion today to $175 billion in 2050. These projected costs are presented above in Table 6.2.

Required investment levels are significant and would likely need to be shared among governments, the private sector, households, and donors. The most significant increase as a percentage of GDP would need to occur in low-income countries in Sub-Saharan Africa, from 1.9 percent today to 5.5 percent in 2050. Achieving such a significant increase of the education budget across the region will be a considerable challenge and will require partnerships between multiple actors in addition to unwavering political will.

How would additional funding under the Vision Scenario be utilized? For 2030 and 2050, the Commission's model shows an increased proportion spent on non-salary recurrent costs (which includes teaching and classroom materials, in-service training, monitoring and data collection, and interventions aimed at making classrooms inclusive). The relative share of resources spent on targeted support for marginalized children, school construction, and other permanent school capital also increases. Salary levels in absolute terms would not decline for any country and would increase in many countries, but a smaller share of the total cost is spent on teacher salaries.

Importantly, those changes could take place in the timeframe for the African Union's Agenda 2063. The AU Agenda ambitiously sets out to transform that challenge into an opportunity:

"Africa's human capital will be fully developed as its most precious resource, from universal primary education to higher education, with no gender discrimination. Youth unemployment will be eliminated, and Africa's youth guaranteed full access to education, training, skills and technology, health services, jobs and economic opportunities."[614]

6.6 RECOMMENDED ACTIONS

- **Generate substantial new resources for secondary education** through a mix of strategies including:
  - improving domestic resource mobilization
  - exploring innovative financing mechanisms such as results-based finance through social and development impact bonds
  - crowding in additional resources from the private and philanthropic sectors
  - making more strategic use of Official Development Assistance
  - reducing the cost of sending remittances to free up household spending on education
- **Use available resources more efficiently.** While more resources are needed in secondary education, much more can be done by using existing resources more efficiently, including:
  - improving teacher quality, deployment, and utilization, and reducing teacher absenteeism
  - countering high repetition and low learning, particularly at the primary level
  - exploring alternative forms of secondary education delivery, including reducing reliance on boarding facilities
  - improving education system management and school fee payment systems.
- **Complement efforts to provide fee-free secondary education with equity-based financing.** Target the most disadvantaged students, particularly girls, with bursaries, scholarships, or cash transfers to enable them to meet secondary school costs such as uniforms, transport, and boarding. Targeted funding formulas to disadvantaged regions, schools, or groups also have strong potential.
- **Address "unfinished business" in primary education.** Continue to invest in improving access, preventing dropout, and improving the quality of primary school. That will contribute to more well-prepared students transitioning to secondary education with stronger foundational skills, making spending on secondary education teaching and learning more efficient.

Norbert Agola teaches entrepreneurship class in Uganda as part of the Mastercard Foundation partnership with STiR Education to improve learning through classroom innovation.

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CONCLUSION AND RECOMMENDED ACTIONS

NOW IS THE TIME TO INVEST IN QUALITY, RELEVANT SECONDARY EDUCATION THAT PREPARES ALL YOUTH FOR THE CHANGING NATURE OF WORK.

Investments in and reform of secondary education are urgently required and must be comprehensive and sustained over time. There is no silver bullet or intervention in a single area that, on its own, will generate the change needed to transform secondary education systems to meet the demands of the labour markets and economies of the future. Each context is different, and countries must design systems and curricula to meet their unique needs. Governments, supported by non-state actors and international partners, should make sustained investments and actions in support of reform and innovation over time and at all levels of the education system. Support for improved teacher training, better access to secondary education and TVET through equity-based financing, and fostering systems-level innovation are just some of the areas called for in this report. With human creativity, ingenuity, and steadfast will, together we can meet this challenge. Indeed, young people deserve nothing less.

BUILDING FUTURE PROSPERITY THROUGH SECONDARY EDUCATION

Ensuring that Africa's young people secure employment or can create their own livelihoods is arguably one of the most significant tasks facing African policymakers today. Young people will need to be prepared with the knowledge and skills sought by employers and to succeed as entrepreneurs, and the majority of youth will need to find work in the informal sector for the foreseeable future.

Secondary education — both general and TVET — will increasingly be the main platform from which African youth access the labour market. This report makes the case that investing in improvements to secondary education in Africa will be vital to preparing youth to succeed in the changing world of work. Trends such as digitalization and automation increasingly put a premium on the key skills of foundational literacy and numeracy, 21st-century skills, digital skills, as well as STEM, technical and vocational, entrepreneurship, and work readiness skills. These skills are also crucial to building resilience in the face of global challenges such as climate change, migration, and urbanization. Furthermore, they are vital to allowing young people to become global citizens. Perhaps most importantly, a quality education is intrinsically important to young people themselves, helping them lead life to the fullest.

Investing in secondary education that enables youth to develop key skills will directly support African governments' vision of knowledge-driven development. Investing in the crucial skills discussed in this report will be key to realizing the ambitious agenda of building dynamic, knowledge-based societies and economies as articulated in the African Union's Agenda 2063, as well as in the 2030 Sustainable Development Goals. Now is the time to ensure that secondary education systems are capable of fostering young people's acquisition of these skills and competencies at the scale required.

The economic argument for investing in secondary education is compelling. A growing share of Africa's still rapidly expanding youth population will access secondary education in the coming decades. If young people in secondary education are given the chance to acquire the key skills described in this report, their productivity will increase, helping to drive broad-based economic growth in both the formal and informal sectors. Such productivity-driven growth also has the potential to contribute to economic transformation and a shift away from agriculture to services and other higher-value-added sectors.

Boosting productivity, while also addressing high fertility rates in many countries, is an unambiguous requirement for reaping the demographic dividend. Indeed, providing better, work-relevant secondary education to young people, especially girls, can hasten the demographic dividend by giving young people the knowledge and competencies they need to have greater control over their reproductive lives and contribute economically to society.

While arguing for the centrality of a quality, relevant secondary education, this report also recognizes that education alone will not solve Africa's jobs challenge. African governments must also create a facilitating environment for economic expansion and job creation by investing in infrastructure such as roads, ICT, and health systems, as well as research and development. Governments should also promote transparency, sound governance, and effective regulation that unleashes, not stifles, private-sector investment and innovation.

FOSTERING EFFECTIVE SKILLS AND COMPETENCIES FOR ALL YOUNG PEOPLE

How can education systems best impart the key skills needed for work and life? As argued in Chapter Two, curricula must be relevant to labour market needs. Competency-based approaches supported by active, student-centred pedagogies facilitate acquisition of the key skills needed to succeed in school, work, and life. Importantly, these skills and pedagogies do not require a separate course or curriculum: most can be integrated within existing curricula in mathematics, literature, science, and other subjects. Yet, to effectively do so, teachers must be trained in the use of these pedagogies and resourced with appropriate learning materials and support from school leaders. Further, assessments should be aligned to evaluate these skills, with greater use of continuous learning assessments in the classroom.

Teachers are one of the most important resources for facilitating quality learning. A virtuous cycle begins with quality initial teacher training. As demonstrated in Chapter Three, Africa will require an additional 10 million teachers by 2030 to meet the demand for quality, relevant secondary education. African countries can catalyze a virtuous cycle by investing in quality teacher training that attracts top students into the profession and providing excellent training in content and pedagogy. These measures will in turn improve learning outcomes and reduce inefficiencies in the system, resulting in a new generation of well-prepared students who want to become teachers themselves.

Flexible systems will be needed to ensure that all youth can access secondary education, both general and TVET. Few youth take a direct path through school, due to the need to work or help with family duties, or because of conflict or other crises. Throughout Sub-Saharan Africa, 65 million young people are out of school, and millions more drop out before completing secondary school. Chapter Four describes multiple accelerated learning and other alternative programs. Promising models need to be scaled to address the needs of vast numbers of youth. Further, with few pathways between technical and vocational training and general secondary and tertiary education, new thinking and investment are needed to create more flexible routes within the education system and to recognize alternative forms of training such as informal apprenticeships.

This report argues that only sustained reform and innovation can meet the scale of the challenge. Current rates of progress and business-as-usual will not suffice to generate the change necessary to expand secondary education and prepare young people for the changing nature of work. Building effective secondary education systems — both general and TVET — that allow youth to acquire knowledge and skills at the scale needed given current demographic and economic realities is a massive endeavour. Meeting growing demand and addressing the urgent priority of preparing youth for work requires nothing less than bold, sustained reform and innovation involving a range of actors including governments, the private sector, NGOs, and international partners.

As demonstrated through the cases of Sierra Leone and Senegal, and through dozens of examples provided throughout this report, reform and innovation in education systems is both possible and urgently needed. While sustained increases in learning have been more difficult to achieve than increases in enrolment and improvements in equity, there are some signs of progress in this area. Political vision and support at the highest levels, as well as broad-based coalitions and partnerships with non-state actors and international institutions, are associated with effective reform. When these constituents get behind data-driven plans and policies aimed at achieving well-defined outcomes with clear lines of responsibility, and actors are held accountable, systems-level change is more likely to succeed.

Governments can foster innovation in education. This report describes how governments can institutionalize the capacity to innovate within schools, ministries, and other institutions by creating an enabling environment that supports risk-taking and creativity, and encourages a continual process of trying new ideas, testing and adapting them, and scaling successful models. Rwanda, Tanzania, and Nigeria, for example, demonstrate the promise of creating innovation hubs and programs within and outside of ministries of education to cultivate, test, and scale new ideas, as discussed in Chapter Five.

INVESTING IN SECONDARY EDUCATION

Reforming and expanding secondary education so that all young people can acquire the skills they need calls for significant additional resources and more efficient use of existing funds. These investments will pay off in the long term through greater productivity and economic growth. In its analysis for this report, the Education Commission estimated the financing needs for Sub-Saharan Africa to reach full enrolment and completion in secondary education by 2050 to be US$175 billion per year, up from a current annual investment of US$25 billion. These additional financing needs account for the cost of additional, equity-based financing to help marginalized communities access quality secondary schools.

New forms of financing are also needed to reach required levels of investment in secondary education. Given tight government budgets (compounded by slowing economic growth in some countries), crowding in private sector investment and experimenting with alternative financing mechanisms are necessary. Innovative financial instruments, such as social impact bonds and education outcome funds, offer promise. States can also use more competitive procurement practices for ancillary services such as textbooks and school construction. Importantly, investments in secondary education should not come at the expense of primary, where it is vital to complete unfinished business in access and learning.

RECOMMENDED ACTIONS

1. **Provide political vision and leadership at the highest levels to support and prioritize investments and policies to reform and innovate in secondary education.** This includes:

- Invest in creating a **shared vision and buy-in to system reforms** that expand the focus on skills for work in secondary education and responds to the needs of young people and their communities
- Enable implementation through **viable plans with clear roles and responsibilities** for specific outcomes, accountability mechanisms and adequate funding
- Strengthen the **capacity of ministries** to translate inputs into outcomes through greater technical expertise, the ability to use and analyse data and to overcome political economy constraints

2. **Integrate seven key skills relevant to labour market needs into secondary education curricula and pedagogy.** Specifically,

- Strengthen **foundational skills** in literacy, numeracy and fluency in the language of instruction through greater curriculum time, stronger pedagogies and remediation support where necessary
- Develop **21st-century skills** through interactive and group-based learning, experiential learning, and leadership development
- Develop **digital skills** by strengthening teacher and student capacity to use digital technology and invest in hardware and software at school level
- Strengthen **STEM knowledge and skills** through enhancing the quality of science teaching, increasing practical problem-solving activities, and reducing gender barriers
- Expand opportunities for developing relevant **technical and vocational skills** through offering TVET courses in general secondary education, ensuring TVET courses include foundational, 21st-century and digital skills and aligning technical and vocational courses to labour market needs
- Promote **entrepreneurship and work readiness skills** through co- and/or extracurricular courses, experiential learning and skills courses in business planning and management, financial literacy and work readiness
- Ensure **alignment between competency-based curriculum reforms, pedagogy and assessment systems**, including reducing the number of high stakes examinations, greater focus on assessment of skills, and conducting national assessments of learning to support teachers and schools falling behind

3. **Expand recruitment and training to fill projected gaps (10.8 million secondary school teachers by 2030)**. This will require a huge expansion in teacher recruitment and training while also improving teachers' working conditions to attract good-quality new entrants and reduce attrition. In addition,

- Invest in **high-quality pre-service teacher training** that equips new teachers with subject matter content, pedagogical skills and fluency in the language of instruction, as well as supervised practice with experienced teachers.
- Develop stronger **promotion and leadership pathways** for high-performing teachers that allow them to provide instructional leadership and mentor junior colleagues
- Institute **certification programs for unqualified teachers** using face-to-face and distance learning approaches
- Prioritize **digital skills development** for all teachers
- Invest in strengthening **school leaders' capacity** to provide instructional leadership

4. **Establish and formalize alternative pathways between non-formal and formal education with portable accreditation to increase access for out-of-school youth.** Secondary systems must be increasingly structured in a flexible way to offer large numbers of youth alternative education pathways that allow for re-entry into formal schooling. Specifically,

- **Scale successful and equitable education and training programs,** including those provided by non-state actors, through links to the formal education system
- Facilitate **re-entry to school for adolescent mothers**
- Create an effective **regulatory environment to harness the potential of non-state actors** to expand provision of high-quality secondary education, TVET and ancillary services.
- Create **national skills strategies and/or national qualifications frameworks** that map available training and qualifications and create such pathways between levels and types of education and the labour market.

5. **Create pathways between secondary-level general education, TVET and post-secondary and tertiary education.** Governments and private institutions should create flexible admissions procedures, guidance, credit transfer procedures, bridging programs, and equivalency mechanisms that are recognized and accredited by the relevant authorities to formalize pathways between general and TVET education at all levels. National Qualifications Frameworks can also facilitate this process.

6. **Institutionalize capacity to innovate in education within government.** As the pace of social and economic change increases, and as greater numbers of youth seek to access secondary education, the need for innovation in education will intensify. Ministries of education should:

- Develop **embedded innovation units** that use an approach of continual piloting, testing, adaptation and scaling of successful models so that promising approaches can be mainstreamed.
- Establish **education innovation ecosystems** that engage stakeholders across the public, private and not-for-profit sectors and foster critical debate with space to learn and fail.

7. **Generate substantial new resources for secondary education through a mix of strategies.** These include:

- Improve **domestic resource mobilization**
- Explore **innovative financing mechanisms** such as results-based finance through social and development impact bonds
- **Crowd-in additional resources** from the private and philanthropic sectors
- Make more **strategic use of Official Development Assistance**
- Reduce the **cost of sending remittances** to free up household spending on education

8. **Complement efforts to provide fee-free secondary education with equity-based financing.** Target the most disadvantaged students, girls in particular, with bursaries, scholarships, or cash transfers to enable them to meet secondary school costs such as uniforms, transport, and boarding. Targeted funding formulas to disadvantaged regions, schools, or groups also have strong potential.

9. **Use available resources more efficiently.** While more resources are needed in secondary education, much more can be done by using existing resources more efficiently, including:

- Improve **teacher quality, deployment, and utilization,** and reduce teacher absenteeism
- Counter **high repetition and low learning,** particularly at the primary level
- Explore **alternative forms of secondary education delivery,** including reducing reliance on boarding facilities
- Improve **education system management**
- Ensure investments in secondary education are **not at the expense of improving access and quality of primary education** which contributes to making spending on secondary education teaching and learning more effective and efficient

10. **Develop systems for cross-sectoral dialogue.** Create mechanisms to bring together and facilitate dialogue between education sector stakeholders and other government and labour market actors such as ministries of finance, labour, youth, and ICT, as well as employers, industry associations, and unions. This can help increase the relevance of secondary education and strengthen broad-based support for reform.

BACKGROUND PAPERS AND CONSULTATIONS

We would like to recognize the contributions of the research teams who worked tirelessly on the background studies that provided much of the content for this report. The commissioned studies are listed below:

THE FUTURE OF WORK IN AFRICA: IMPLICATIONS FOR SECONDARY EDUCATION AND TVET SYSTEMS

Authors: Edward K. Brown and Helen Slater (African Centre for Economic Transformation)
Funder: Mastercard Foundation

EQUITABLE FINANCING OF SECONDARY EDUCATION IN SUB-SAHARAN AFRICA

Authors: Asma Zubairi and Pauline Rose (Research for Equitable Access and Learning Centre, University of Cambridge)
Funder: Mastercard Foundation

TARGETING SCHOLARSHIPS AND CASH TRANSFERS FOR SECONDARY EDUCATION IN SUB-SAHARAN AFRICA

Authors: Rebecca Gordon and Pauline Rose (Research for Equitable Access and Learning Centre, University of Cambridge)
Funder: Mastercard Foundation

PREPARING YOUTH FOR THE TRANSITION TO WORK

Authors: Magdalena Wilson, Zia Khan, Panchimana Cheriyan, and Dimitri Stoelinga (Laterite Ltd.)
Funder: Mastercard Foundation

CURRICULUM REFORM, ASSESSMENT AND NATIONAL QUALIFICATIONS FRAMEWORKS

Authors: Brahm Fleisch, John Gultig, Stephanie Allais and Felix Maringe (University of Witwatersrand)
Funder: Bill & Melinda Gates Foundation

APPROACHES TO STRENGTHENING SECONDARY STEM AND ICT EDUCATION IN SUB-SAHARAN AFRICA

Authors: A. M. Barrett, V. Gardner, M. Joubert, and L. Tikly (University of Bristol)
Funder: Mastercard Foundation

SECONDARY LEVEL TEACHER EDUCATION IN SUB-SAHARAN AFRICA TEACHER PREPARATION AND SUPPORT

Authors: Nick Taylor, Roger Deacon, Natasha Robinson, Jacklyn Makaaru Arinaitwe, Jost Uwase, and Jean Adotevi (JET Education Services), Emma Broadbent, and Charlotte Oloya (Varkey Foundation)
Funder: Varkey Foundation

INFORMATION AND COMMUNICATIONS TECHNOLOGIES IN SECONDARY EDUCATION IN SUB-SAHARAN AFRICA: POLICIES, PRACTICES, TRENDS, AND RECOMMENDATIONS

Authors: Mary Burns (Education Development Centre) and Mohammad Issack Santally (University of Mauritius)
Funder: Bill & Melinda Gates Foundation

SECONDARY EDUCATION FOR YOUTH AFFECTED BY HUMANITARIAN EMERGENCIES AND PROTRACTED CRISES

Authors: Elisabeth King, Emily Dunlop, Jo Kelcey (New York University), and Caroline Ndirangu (University of Nairobi)
Funder: Dubai Cares

ALTERNATIVE EDUCATION AND RETURN PATHWAYS FOR OUT-OF-SCHOOL YOUTH IN SUB-SAHARAN AFRICA

Authors: M. W. Ngware, H. Boukary, P. Wekulo, M. Mutisya, K. Zikani, C. M. A. Otieno, and A. R. O. Riechi, (African Population and Health Research Centre)
Funder: Mastercard Foundation

TRANSITIONS FROM PRIMARY TO LOWER SECONDARY SCHOOL: A FOCUS ON EQUITY

Authors: Clement Sefa-Nyarko, Pearl Kyei, and David Mwambari (Participatory Development Associates Ltd.)
Funder: Mastercard Foundation

PUBLIC-PRIVATE PARTNERSHIPS AND PRIVATE ACTORS IN SECONDARY EDUCATION IN SUB-SAHARAN AFRICA

Authors: Monazza Aslam (Oxford University) and Shenila Rawal (University of Bristol)
Funder: The Elma Foundation

SECONDARY EDUCATION GOVERNANCE IN SUB-SAHARAN AFRICA

Authors: Ahmed Baghdady and Omar Zaki (Qatar Foundation)
Funder: World Innovation Summit for Education, an Initiative of Qatar Foundation

THE EFFICIENCY OF SECONDARY EDUCATION IN SUB-SAHARAN AFRICA: CASE STUDIES IN MALAWI AND UGANDA

Authors: Kwame Akyeampong, Marcos Delprato. George Mindano, Keith Lewin, Joseph Chimombo, and John Sentengo (University of Sussex)
Funder: Mastercard Foundation

NOTE ON SCHOOL-BASED MANAGEMENT IN SECONDARY EDUCATION IN SUB-SAHARAN AFRICA

Author: Martin Prew
Funder: Mastercard Foundation

NOTE ON EDUCATION REFORM, IMPLEMENTATION, AND POLITICAL ECONOMY IN AFRICAN SECONDARY EDUCATION

Author: Karen Mundy
Funder: Mastercard Foundation

NOTE ON INNOVATION IN AFRICAN SECONDARY EDUCATION

Author: Karen Mundy
Funder: Mastercard Foundation

SECONDARY EDUCATION IN AFRICA: POINTS OF VIEW OF AFRICAN YOUTH

Author: ADEA based on analysis by youth ambassadors
Funder: Mastercard Foundation

COSTING AND FINANCING SECONDARY EDUCATION. BACKGROUND MEMO ON EDUCATION COMMISSION COSTING MODEL RESULTS DEVELOPED FOR MASTERCARD FOUNDATION SEA REPORT

Author: The Education Commission
Funder: Mastercard Foundation

SECONDARY EDUCATION IN AFRICA TODAY REVIEW OF THE LITERATURE

Author: Research for Equitable Access and Learning Centre, University of Cambridge
Funder: Mastercard Foundation

SECONDARY EDUCATION QUALITY IN SENEGAL: A CASE STUDY

Author: Performance Group
Funder: Mastercard Foundation

CASE STUDY – POST-PRIMARY EDUCATION ENROLMENT & COMPLETION IN SIERRA LEONE

Authors: Ezekiel Nonie and Miriam Mason
Funder: Mastercard Foundation

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ADEA ICQN on Teaching and Learning (Kigali, Rwanda, November 2018)

Private Sector Roundtables (Johannesburg, South Africa, November 2018, and Kampala, Uganda, February 2019)

UNESCO IICBA Teacher Consultation (Addis Ababa, Ethiopia, March 2019)

Consultations with Youth Ambassadors (Abidjan, Côte d'Ivoire, January and November 2018)

ADEA High-Level Policy Dialogue (Johannesburg, South Africa, July 2019)

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