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

A GENDER BRIEF
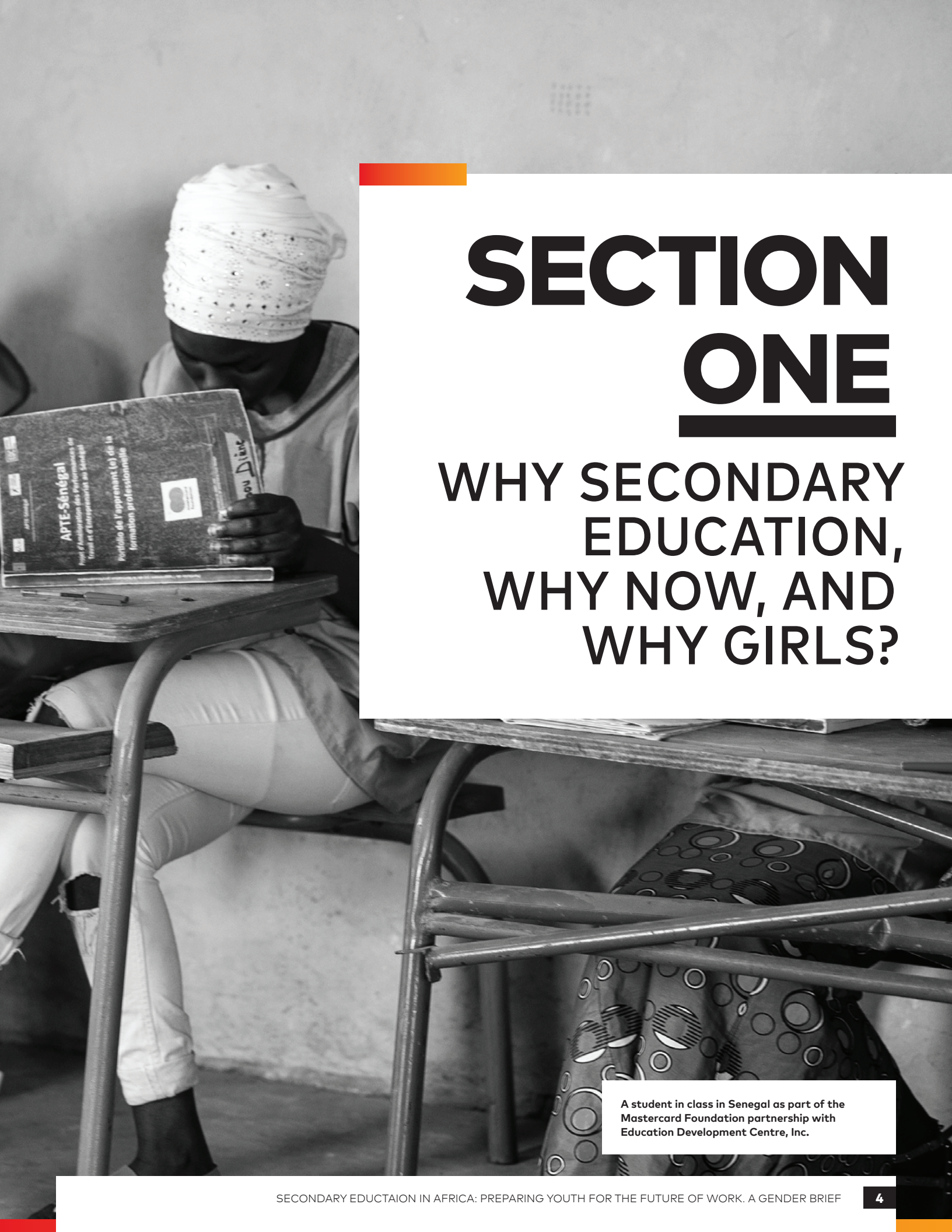
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This gender brief is a complement to the ***Secondary Education in Africa: Preparing Youth for the Future of Work Report***, published by the Mastercard Foundation in August 2020. The ***Secondary Education in Africa (SEA) Report*** focuses on the role of secondary education in ensuring young people acquire the skills, knowledge, and competencies necessary to succeed in a dynamic and globalized labour market. Drawing on a wide range of research conducted by Scholars in Africa and globally, the report provides policy makers and other education stakeholders with examples of promising practices from across the region and beyond. The *SEA Report* highlights both the urgency of, and the various pathways to, improving secondary education outcomes in Africa, which are increasingly seen as critical for Africa's growing youth population to access dignified and fulfilling work opportunities.

Drawing on the *SEA Report*, this **Gender Brief** takes a gendered look at young people's preparedness for work, specifically girls and young women, in secondary education, in order to provide policy makers and education practitioners with forward-looking solutions that meaningfully contribute to the acceleration of the continent's economic transformation. The gender brief hones in on what needs to be done for more African girls and young women to acquire the necessary skills, knowledge and competencies to be engaged, productive, and employed citizens. In addition, this paper showcases interventions and models that have an impact on preparing young women for work now and in the future.

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SECTION ONE

WHY SECONDARY EDUCATION, WHY NOW, AND WHY GIRLS?

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

Secondary education that provides young women and girls with an opportunity to gain the skills and knowledge they need to succeed in work and entrepreneurship is crucial to the future of African economies. Secondary education can provide the skills demanded by the labour market, increase young people's productivity, and help create jobs — as increased productivity fosters economic growth in both the informal and formal sectors. In addition, the rising demand for secondary school teachers and TVET instructors, as a result of greater investment in secondary education, is likely to create meaningful and dignified work for millions of young people in the coming decade.

Several factors point to the increased importance of secondary education for preparing young women and men for the future of work and for helping to transform African economies.

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] Currently, women make up over 50% of the continent's 1.3 billion inhabitants. African women should therefore contribute to the global workforce in equal proportion.

Africa's young and growing population positions the region well to realize the benefits of a demographic dividend. It is estimated that this demographic transition in Africa could "explain 11–15 percent of GDP growth by 2030 and lead to 40–60 million people out of poverty."[2] Policy makers' ability to harness this potential is, however, far from assured. To realize these benefits, young women must have access to voluntary family planning and the ability to delay motherhood, and the working-age population must be skilled and engaged in productive employment.

The COVID-19 pandemic has disproportionately affected girls' education, with high economic costs. Early evidence indicates that girls are less likely than boys to return to school following stay-at-home orders. UNESCO and the Association for Development of Education in Africa's KIX Observatory estimate that 5.3 million African primary and secondary students risk not returning to school, with girls disproportionately impacted.[3] This makes it vital to ensure girls can, and do, access quality, relevant and inclusive secondary education, or their ability to fulfill their potential and contribute to their society and economy will be curtailed.

Ensuring that Africa's young women secure employment or can create their own livelihoods is essential to creating a prosperous Africa that also allows girls to reach their full potential. Women in Sub-Saharan Africa have high rates of labour force participation (61%) compared to most other regions, but their participation is still lower than that of men in Sub-Saharan Africa (72%) as of 2020.[4] Young women will need to be prepared with the knowledge and skills sought by employers and to succeed as entrepreneurs. Until then, the majority of these young women will likely find work in the informal sector. Bringing more women into the labour market and increasing their productivity will help Africa reach its vision of achieving economic transformation and prosperity.

Girls' equal access to quality, relevant education must be part of the story if Africa is to reap the full benefits of secondary education. Secondary education that prepares young women to enter the workforce, improve productivity, and spur economic transformation could play a critical role in advancing Africa's socio-economic transformation. Conversely, the failure to educate girls who are excluded from school due to early pregnancy alone can result in a further loss of $10 billion in GDP across the continent.[5]

Digitization, automation, and technological advances are changing the nature of work globally, including in Africa, and girls must be prepared in these areas to overcome labour market barriers. The trends of digitization and automation will increase uncertainty and the pace of change. STEM and other skills that help young female workers be adaptable, resilient, and creative problem-solvers will help them succeed in work and life. Equipping girls with these skills will be key to driving productivity gains in both the formal and informal sectors, improving livelihoods and helping spur economic transformation.

The majority of young people will transition to work through secondary education; this is especially so for young women, who have lower rates of enrolment at the tertiary level than do young men. Only about nine percent of African youth attend university or other tertiary level education,[6] and of these, there are only 76 young women for every 100 young men. So while preparing girls for tertiary education remains critical,

girls will continue to rely disproportionately on secondary education to help them earn an income, support their families, and contribute to the continental economy.

Global challenges such as climate change and the COVID-19 pandemic make secondary education especially important. A secondary education that fosters critical thinking, communication, digital and financial literacy, problem-solving and entrepreneurship skills is vital to helping young women, their families, and their communities adapt and respond to global crises. Evidence shows that girls' education can increase a community's resilience to climate change and improve the health of young mothers and their children during health crises such as the coronavirus pandemic.[7]

The challenge of expanding access to high-quality, relevant secondary education today is monumental. Due to widespread success at increasing enrolment in, and completion of, primary school, an increasing share of a growing population is reaching a stage where they will be ready to transition to secondary school. Girls in many Sub-Saharan African countries are now completing primary school at higher rates than boys, expanding demand for secondary education.[8] Expansion of the secondary education system will take place in a context where there are still low learning levels at the primary level, significant population growth, and increasingly constrained government budgets due to economic headwinds in the region and the coronavirus pandemic. These factors underline the urgency of identifying promising approaches to expanding access to high-quality, relevant secondary education in Africa for all girls and boys.

African governments unanimously adopted the African Union's Agenda 2063, which calls for creating prosperous, knowledge-based economies and identifies human capital as the continent's "most precious resource." Agenda 2063 calls for sustained investments in education, including "elimination of gender disparities at all levels of education." African governments have also committed to achieving the Sustainable Development Goals, including SDG 4: "universal, inclusive quality education for all." In order to meet these goals, African governments will need to direct greater investment in, and adopt, policy changes to improve girls' access to quality secondary education.

SECTION TWO

SECONDARY EDUCATION AND THE CHANGING LANDSCAPE OF WORK: ENHANCING YOUNG WOMEN'S SKILLS FOR WORK AND ENTREPRENEURSHIP

Workshop materials at African Leadership Academy in South Africa. Photo courtesy of African Leadership Academy. Reproduced with permission.
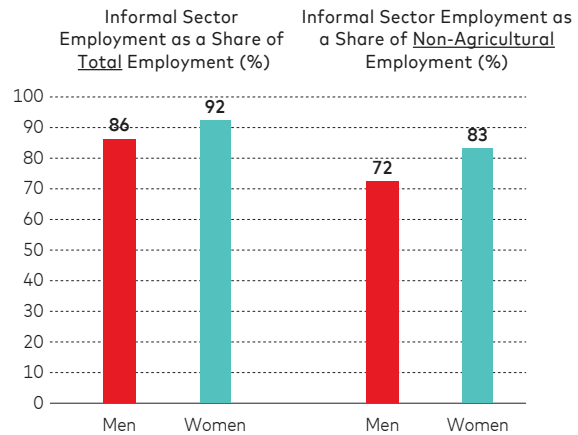
The changing nature of work, combined with high levels of informal employment across the continent, make it increasingly important that girls and boys acquire the skills they need to find and retain employment or create their own businesses.

Employment in Sub-Saharan Africa is overwhelmingly informal, with 89% of all employment in the informal sector, the highest of any world region, and women being the most affected. In Sub-Saharan Africa, 92% of women are employed in the informal sector, compared to 86% of men.[9] The informal sector is characterized by more vulnerable employment, in which workers lack a regular salary and social protections that formal sector workers enjoy. Additionally, much of the work that women do within the home is unrecognized as labour and is not remunerated.

Over half the women working in the informal economy in Sub-Saharan Africa (52%) are entrepreneurs working for themselves, making it crucial for them to learn the skills needed to succeed.[10] Because most girls in Sub-Saharan Africa can expect to work in the informal economy, and over half of them will work as entrepreneurs, it is crucial that they have the skills needed to thrive in this sector, including 21st-century skills such as communication and problem-solving. Digital skills as well as foundational literacy and numeracy are also key for this sector. Investing heavily in secondary education will help improve women's productivity in the informal sector while also facilitating their transition to the formal sector, helping to drive economic expansion.
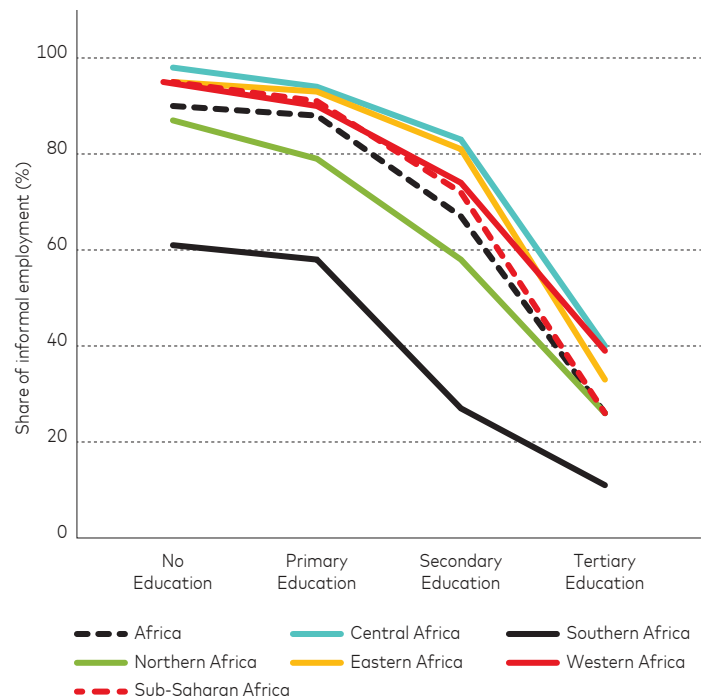
Education can help some girls and boys move out of informal employment into the formal sector. In Sub-Saharan Africa, 97 percent of workers with no education are informally employed. In Southern Africa, the level of informal employment is much lower than in the rest of Sub-Saharan Africa, but those with higher levels of education are still far more likely to have formal work than those without. Over the long run, education and skills development can boost workers' productivity and thus contribute to economic growth and transformation.

FIGURE 1
SHARE OF WOMEN AND MEN IN INFORMAL EMPLOYMENT IN SUB-SAHARAN AFRICA

Source: ILO, "Women and Men in the Informal Economy: A Statistical Brief" 2019.

FIGURE 2
SHARE OF INFORMAL EMPLOYMENT BY REGION, AGE, AND LEVEL OF SCHOOLING
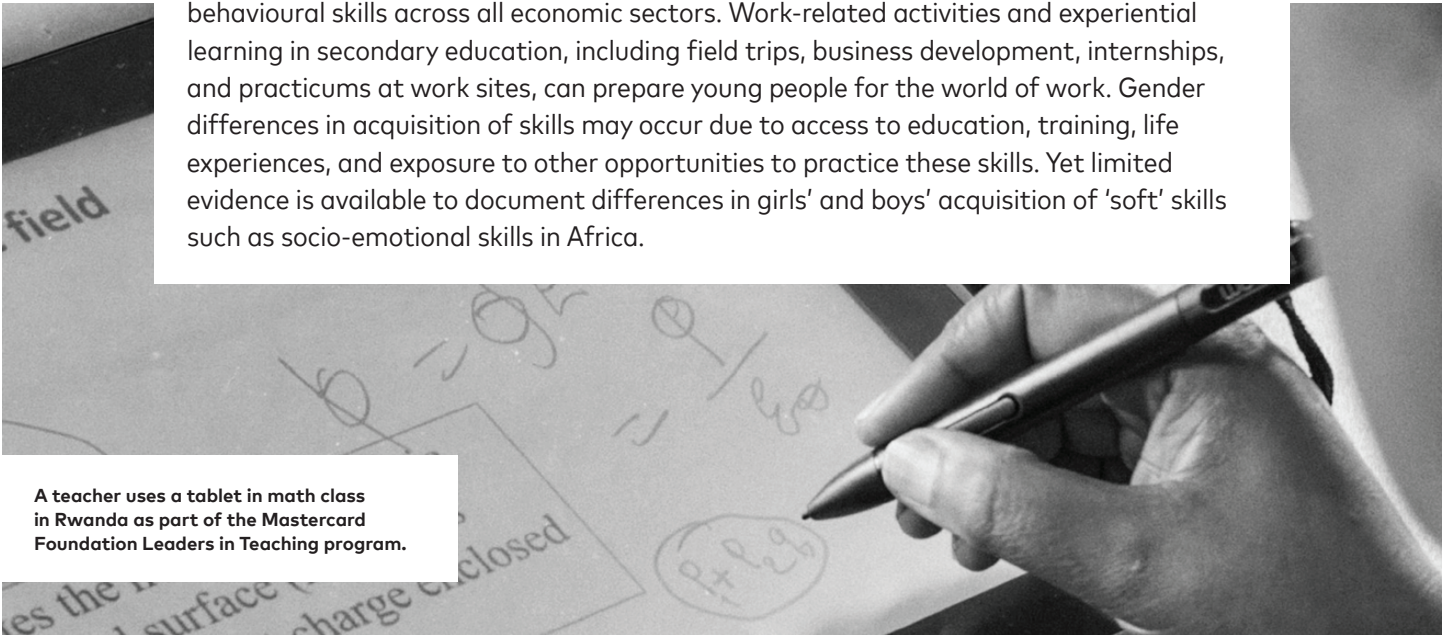

Source: ILOSTAT, 2017.

Regardless of whether girls and young women are employed in the formal or informal sector, each year of education is associated with higher earnings. The World Bank estimates that young people with a secondary education in low-income countries earn 18% more for each additional year of schooling. The earnings premium for girls for each additional year of education is approximately two percentage points higher than it is for boys, and increasing over time. These data point to the importance of secondary education for girls' ability to secure a livelihood once they leave school.[11]

Young people with secondary education in low-income countries earn 18% more for each additional year of schooling.

– Psacharopoulus and Patrinos, The World Bank

GENDERED IMPLICATIONS FOR SKILLS NEEDED FOR THE FUTURE OF WORK

As the nature of work changes, there will be an increasing convergence in the skills needed for workforce preparation, and the 'soft' skills that enable engaged citizenship. Foundational literacy and numeracy will remain critical building blocks — and more emphasis must be placed on achieving these at the primary level — but more advanced subject areas such as STEM, digital literacy, entrepreneurship, and other transferable skills such as communication and time management will gain greater currency. Further, a consensus is emerging about the importance of socio-emotional and behavioural skills across all economic sectors. Work-related activities and experiential learning in secondary education, including field trips, business development, internships, and practicums at work sites, can prepare young people for the world of work. Gender differences in acquisition of skills may occur due to access to education, training, life experiences, and exposure to other opportunities to practice these skills. Yet limited evidence is available to document differences in girls' and boys' acquisition of 'soft' skills such as socio-emotional skills in Africa.
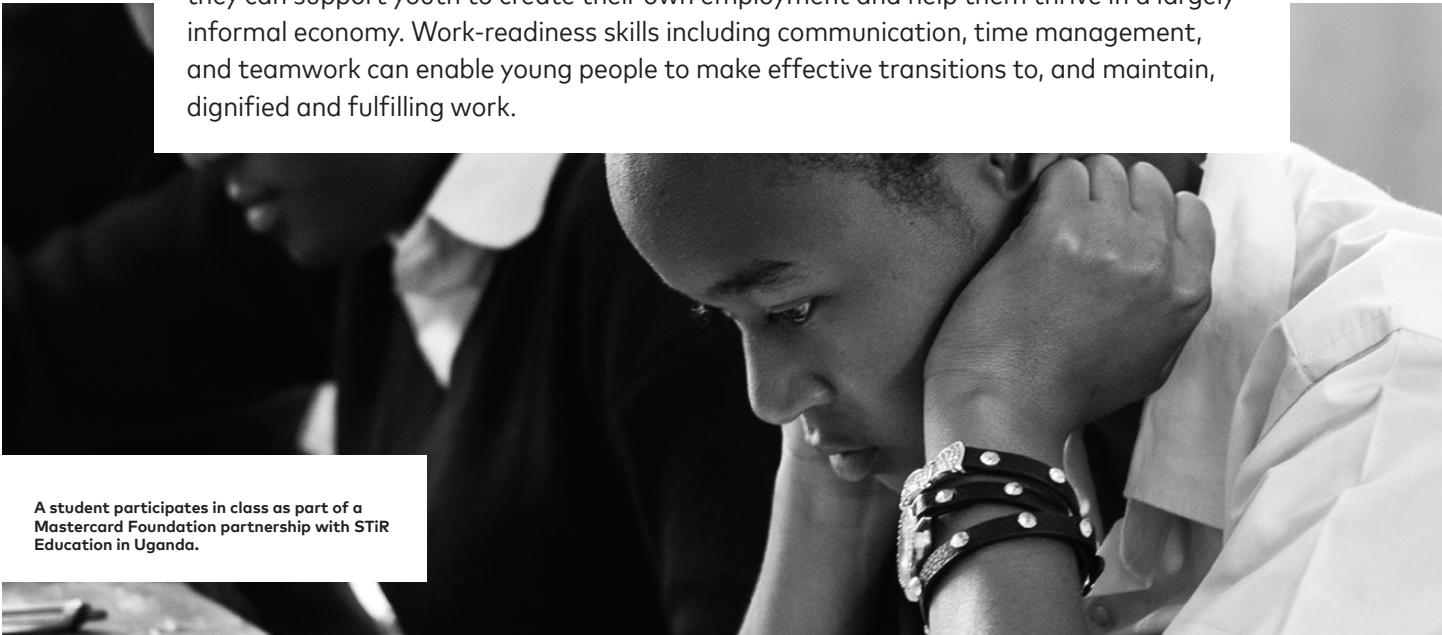
A teacher uses a tablet in math class in Rwanda as part of the Mastercard Foundation Leaders in Teaching program.

While education alone does not guarantee growth, developing human capital is a critical element of both promoting medium- and long-run growth, and ensuring that it is broad-based, gender equitable, and inclusive. Over the medium to long run, relevant secondary education and skills acquisition coupled with meaningful participation of young people in productive sectors can contribute to economic growth and transformation. While critical, education is just one element of the growth equation. Capital investment, governance, strength of institutions, infrastructure and technological advancement, among others, all combine to influence economic growth. At present, several other external factors, including a potential debt crisis, another potential global financial crisis, the impact of the coronavirus pandemic, and a slowdown in global trade linked to U.S.-China tensions are also likely to impact growth in Africa over the medium-term.

As certain skills elicit higher employment and earning premiums, those without relevant skills risk falling further behind. This is true not only for individuals, but also for economies and it means that there is a high societal cost to not prioritizing broad-based skills development through the basic education system. African countries need the participation of all active citizens to fully reach their potential for growth. Investing in improved access and learning outcomes for all young people, including the most marginalized, is therefore an important steppingstone for promoting greater equity in skills, opportunities, income, and prosperity.

SEVEN KEY SKILLS FOR WORK AND LIFE

As African economies change, young people need knowledge and skills that respond to the trends and challenges shaping the future of work. The seven sets of skills as listed in Table 1 underpin innovation and are an excellent vehicle for developing critical thinking and problem-solving abilities. Technical and technological 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 help them thrive in a largely informal economy. Work-readiness skills including communication, time management, and teamwork can enable young people to make effective transitions to, and maintain, dignified and fulfilling work.

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

TABLE 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.[12]
21st-century skills[13]	**What?** The OECD definition of 21st-century skills identifies the following elements:[14] • 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.[15] Twenty-first-century skills are building blocks for higher-order cognitive and technical skills, and enable adaptation to and adoption of new technologies.[16] 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.[17]
Digital skills	**What?** Capabilities and knowledge required to engage with digital technologies for social, political, and economic purposes.[18] **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.[19] Increasingly, employers are seeking workers with intermediate level skills as well as basic skills in keyboarding, using smartphones, and sending email.[20] 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.[21] **Why?** STEM skills are important for a wide range of jobs, often those with higher returns, and underpin many countries' economic transformation strategies.[22]
Technical and vocational skills	**What?** Knowledge, practical competencies, know-how, and attitudes necessary to perform a certain trade or occupation.[23] 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.[24] **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.[25] **Why?** When recruiting school leavers,[26] employers recognize a significant deficit in these skills, which are particularly important for finding opportunities and succeeding in the workplace.

Source: Secondary Education in Africa: Preparing Youth for the Future of Work, Mastercard Foundation, 2020, 75.

FOUNDATIONAL SKILLS

Foundational skills — literacy and numeracy — are the building blocks on which all other learning occurs. These skills underpin lifelong learning and are associated with improved labour market outcomes, including in entrepreneurship. Given learning challenges 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. We also know that competence in the language of instruction is a vital skill for both teachers and learners, particularly in secondary schools where many countries switch to a national or international language for the majority of instruction.

Yet a significant proportion of girls and boys across Sub-Saharan Africa are entering secondary schools with very low levels of numeracy, literacy, and competence in the language of instruction. Examining results by gender, girls performed better on reading at the end of primary (grade 6) while boys performed better at math.[27] Low learning at the primary level has significant implications for learning in secondary education. One indicator of this is test scores in Sub-Saharan African countries participating in international assessments, such as the Trends in International Mathematics and Science Study, which rank among the lowest in the world.[28] Performance levels based on gender are mixed and will be discussed more under STEM skills.

21ST-CENTURY SKILLS

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.[29] A growing digital gender divide complicates the ability of girls to obtain digital literacy (see Digital Skills below and in Box 1 on Coding for Girls).[30] Developing these types of skills will have positive effects not just for girls, but for society overall, as it is increasingly the case that the skills needed for work and those required for learning, personal empowerment, and active citizenship are converging.[31] Twenty-first-century skills can most effectively be developed through interactive pedagogies. STEM subjects, with their emphasis on questioning, problem-solving, and collaboration, provide a particularly fertile context for developing these skills[32], but equally, they can and should be developed through learner-centred approaches in humanities and languages, vocational skills, and the arts.

Co- and extra-curricular activities are an important vehicle for 21st-century skill development for both girls and boys. Activities such as the arts, athletics, student leadership or volunteer work are often overlooked ways to develop increasingly important 21st-century skills such as critical thinking, communication, creativity, collaboration, initiative, and perseverance. Co- and extra-curricular programs also offer a route to helping students develop entrepreneurship and work-readiness skills without overloading the curriculum. Given that the burden of household chores and childcare falls disproportionately on girls and young women, access and ability to participate in extra-curriculars may be more difficult for girls. Special attention and measures may be needed to ensure that both girls and boys benefit from access to extra-curricular facilities and opportunities.

In consultations with young people for the Foundation's *SEA Report*, young people emphasized the importance of clubs, sports, and other after-school activities for their skills development. Such activities might include entrepreneurship clubs that enable students with a particular interest to further develop entrepreneurial skills through projects, or girl and boy specific clubs. iCog Labs, for example, is a research and development company in Ethiopia that has partnered with the Mastercard Foundation to offer coding, robotics, and 21st-century skills training for youth outside of school, helping to ensure that girls have access to these opportunities (see Box 2).

DIGITAL SKILLS

A gender digital divide exists in Africa, due to barriers to accessing technology, the Internet, mobile phones, and digital tools, including those for creating online content. Barriers for girls include cost, know-how, fear of discrimination, as well as literacy and numeracy skills.[33] One study found that girls and women in Sub-Saharan Africa have 45% less access to the Internet than boys and men.[34] Girls are also less likely than boys to own or use a mobile phone.[35] A UNICEF survey found that in seven of eight African countries examined, fewer girls than boys possessed Information and Communications Technology (ICT) skills.[36] The gender digital divide restricts girls' ability to participate in an increasingly digital world and in the many jobs and entrepreneurial activities where digital literacy and tools such as the ability to transfer money and make payments are a must. It also limits girls' ability to advocate for themselves and promote change.[37]

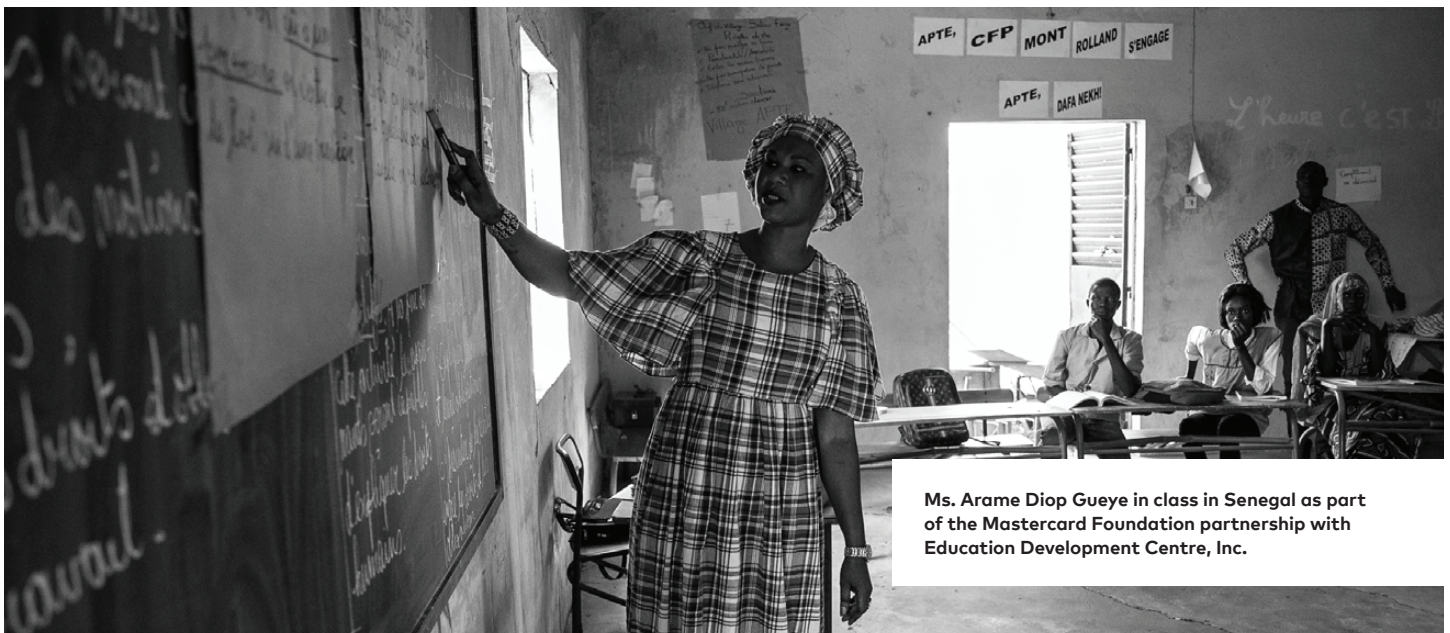**The gender digital divide extends to teachers as well.** A recent study in Rwanda found that secondary level female teachers have less access to technical equipment and are less confident using ICT. The study also found that male teachers are twice as likely to own a laptop or a desktop computer (31% versus 17%), and over five times more likely to own a tablet than are female teachers, and that this personal access is associated with lower female teachers' knowledge and confidence in using ICT.[38]

Girls are less likely to have basic ICT skills than boys. These skills are increasingly considered essential for navigating employment and entrepreneurship in a knowledge-based economy and during crises such as the COVID-19 pandemic.[39] UNICEF's Multiple Indicator Cluster Surveys (MICS) data indicates that in the five Sub-Saharan African countries covered, the share of women of all ages with basic ICT skills are significantly lower than the share for men (see Figure 3).[40]

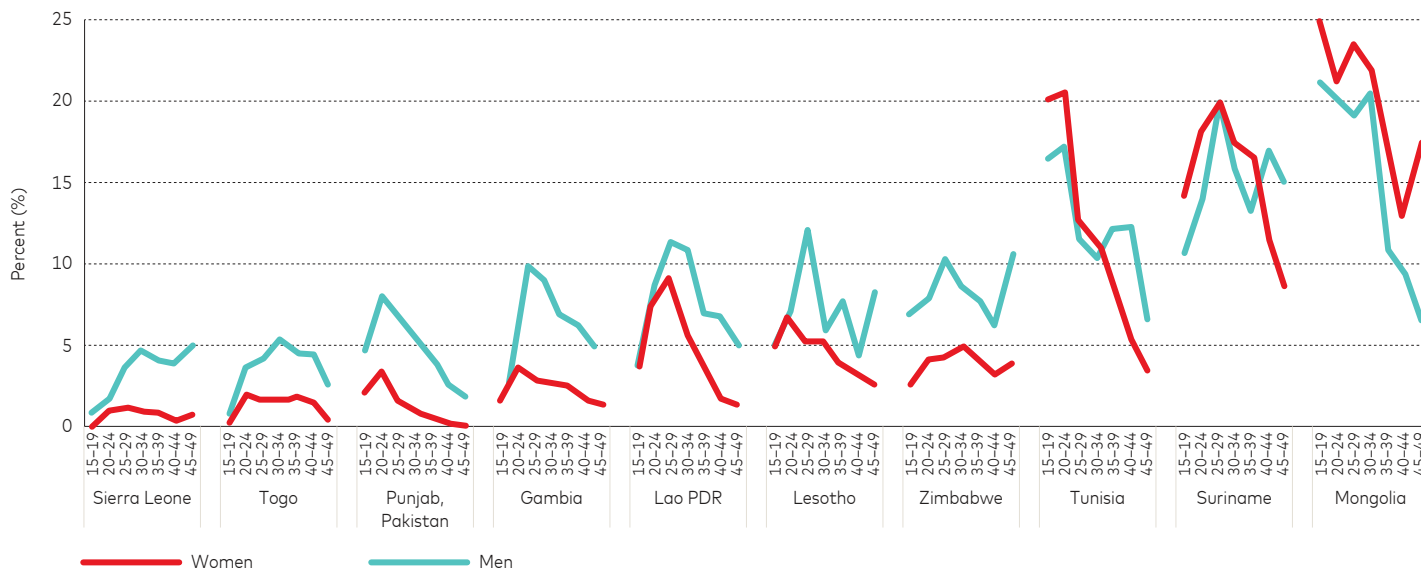**Even if ICT training is available, girls and boys often choose, or are directed towards, different types of training.** For example, while girls may focus on data entry and word processing, boys tend to favour robotics, computer coding, and artificial intelligence courses and workshops. A recent report by the African Academy of Sciences suggests steps that can be taken to increase young women's uptake of STEM subjects in secondary and tertiary education. These include creating greater awareness of science and STEM subjects through talks and workshops directed at female secondary students; mentorship and supportive leadership in secondary school and at the department level in university; modest-paying jobs and internships in STEM; and targeted scholarships for young women pursuing these fields of study.[41]

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

FIGURE 3
SHARE OF WOMEN & MEN IN SUB-SAHARAN AFRICA AND OTHER LOW-INCOME COUNTRIES WITH BASIC ICT SKILLS

Percent of 15- to 49-year-olds who could use a basic arithmetic formula in a spreadsheet, selected countries, by age and sex, 2017–19

Source: UNESCO Gender Report 2020, 20.

Empowering girls with digital skills could increase their productivity and contribute to economic growth. A 2015 study by McKinsey and Co. found that closing the gender digital divide could generate an additional $12 trillion in the global economy.[42] Digital literacy and the ability to create digital content have an important place in achieving gender equity and girls' empowerment. Sustainable Development Target 5.b calls for "enhancing the use of enabling technology, in particular ICT, to promote the empowerment of women." Due in part to the gendered digital divide, schools are the place where girls are able to access tools like desktops, laptops, and tablets. Mainstreaming instruction in ICT, by incorporating it into different parts of the curriculum (rather than a separate course), is important for building digital skills among both girls and boys.[43]

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

BOX 1
COMPUTER CODING PROGRAMS FOR GIRLS AND BOYS

Learning Digital Skills through Computer Coding Programs

A growing number of computer coding programs and co- and extra-curricular clubs aim to help school students develop digital skills. Many initiatives focus on girls in an effort to close the digital divide. Examples include **She Codes for Change** in Tanzania, **Ghana Codes**, CodeSpark Nigeria, **iCog Labs** in Ethiopia, 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. In addition to school clubs, many of these 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 this kind is needed to better understand their contribution to digital skills-building.

The Soronko Academy in Ghana is a technology and digital skills development centre helping disadvantaged young people, especially women and girls, to realize their economic potential. Soronko Academy equips students with technical and soft skills needed to attain employment and to close the gender gap in technology. It offers programs for female graduates of senior secondary school that include training in coding as well as leadership and entrepreneurship skills. After completing the program, eligible girls are supported to attend university, access an internship, or find employment in a business solution centre associated with the Academy.

STEM KNOWLEDGE AND SKILLS

African girls' and boys' relative performance in mathematics and sciences varies by country as measured by SACMEQ tests. Girls' scores in mathematics on the Southern and Eastern Africa Consortium for Monitoring education Quality (SACMEQ) test given in grade 6 are higher than those of boys in some countries, and lower in others. In South Africa, the only African country to participate in the most recent international TIMSS assessment given in grade 9, girls outperformed boys in math and science but scores for both girls and boys are below the international 'low' benchmark. Girls have consistently scored higher than boys for each of the three years the test was given in South Africa (2011, 2015, and 2019).

Despite performing the same or better than boys in some assessments, girls are significantly less likely to study STEM subjects at the tertiary level. In Sub-Saharan Africa, women are often streamed into non-STEM institutions and disciplines associated with lower paying jobs.[44] In Africa, women account for only seven to 12% of engineering students at this level of education.[45] Similarly, the share of female graduates from tertiary level STEM programs in 2018 ranged from 18% in Niger to 21% in Burkina Faso and 31% in Madagascar.[46] In 2017, the probability of female students graduating with a Bachelor, Master or Doctoral degree in science-related fields were 18%, 8%, and 2%, respectively, compared with 37%, 18% and 6% for male students.[47]

The fact that girls are much less likely to pursue STEM-oriented education and careers beyond secondary school suggests there are significant barriers that discourage them from entering these fields. According to UNESCO, many factors limit girls' aspirations and achievement in STEM.

Studies suggest that girls' disadvantage in STEM is the result of the interaction of a range of factors embedded in both the socialisation and learning processes. These include social, cultural and gender norms … Self-selection bias, when girls and women choose not to pursue STEM studies or careers, appears to play a key role.

— UNESCO, *Cracking the Code*, 2017

Gender equality in STEM education is imperative from a human rights, scientific, and development perspective. Tapping the talent and ideas of girls and women is vital for innovation and achievement in science. From a development perspective, excluding girls from STEM education and careers curtails the economic potential of African societies by excluding half of its talent pool.[48]

ENTREPRENEURSHIP SKILLS

Secondary education, if designed well, can help youth acquire skills needed for entrepreneurship. Entrepreneurship skills include 21st-century skills related to problem-solving, creativity, communication, and perseverance, and specific skills related to financial literacy and business management. Many of these skills can be taught throughout the curriculum in general and technical secondary education, especially through teachers' use of active, learner-centred pedagogies. These approaches to teaching engage students in posing their own questions, researching answers and solutions, partaking in hands-on projects, class discussion and presentations, and other critical engagement with and application of the material being studied. More specialized skills such as financial and business management may need to be taught through specifically designed courses.

Deeper and broader entrepreneurship skills will be of increasing importance to future livelihoods, especially for girls who are more likel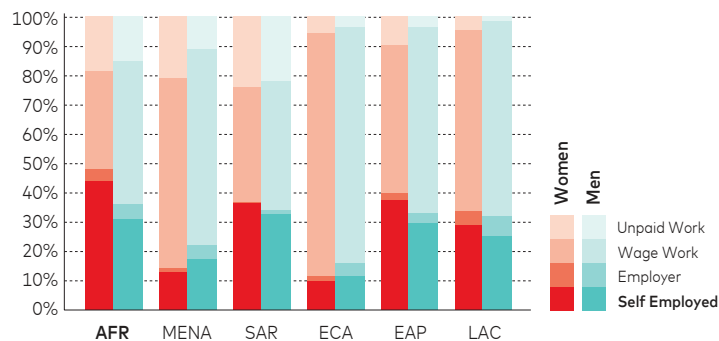y than boys to work for themselves. The vast majority of young people in Africa can continue to expect to make their livelihoods in the informal sector for the foreseeable future. In both the informal and formal sectors, in the public, private, and not-for-profit sectors, entrepreneurship skills are expected to play an increasingly important role in generating productive livelihoods.[49]

Sub-Saharan Africa has the greatest share of women entrepreneurs of any world region. Yet women-run businesses in Africa are less productive and profitable, and have fewer employees than those run by men. This gap is due to a range of challenges including lower levels of education and skills, as well as social norms and expectations regarding women's role in the household.[50] Young women in Africa today complete secondary education at lower rates than young men. Moreover, research by the World Bank has shown that in addition to these gender gaps in formal education, girls generally have lower levels of management skills. While many female entrepreneurs are highly numerate and possess practical know-how, there are systemic barriers limiting their access to modernized business management skills and the resources to scale their businesses.

BOX 2
NANA BENZ TRADERS IN WEST AFRICA

The Nana Benz were a generation of female entrepreneurs during the late-20th-century in Togo who achieved fame and great commercial success. They built business empires exporting printed wax textiles throughout West Africa. They travelled abroad and negotiated exclusive wholesale contracts with manufacturers and set up retail outlets in their own and neighbouring countries. By securing mutually beneficial trading relationships with Western manufacturers, these women amassed great wealth and political influence in Togo despite having little or no education. In many West African countries, similar local models of resilient female entrepreneurship exist and can be tapped into and modernized to inspire the birth and growth of a new generation of female entrepreneurs.

Source: Comi Toulabor, "Transformation of the Nana Benz of Lomé—A Comprador Bourgeoisie Seen Through Fortune and Decline," *Afrique Contemporaine*, Vol 244, Issue 4, 2012.

FIGURE 4
THE SHARE OF FEMALE ENTREPRENEURS BY WORLD REGION

Women in Africa are more likely than men to be entrepreneurs
Activity of non-agricultural labour force by gender and region

Source: "Profiting from Parity: Unlocking the Potential of Women's Businesses in Africa," World Bank, 2019.
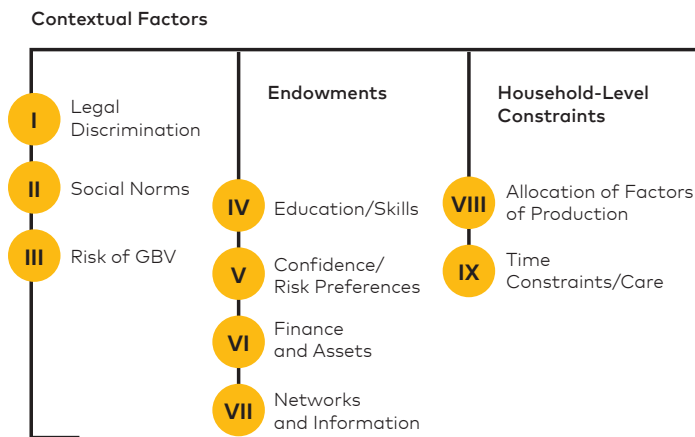

FIGURE 5
CONSTRAINTS FACED BY WOMEN ENTREPRENEURS IN AFRICA[51]

Underlying Constraints

Contextual Factors

	Contextual Factors	Endowments	Household-Level Constraints
I	Legal Discrimination		
II	Social Norms	IV Education/Skills	VIII Allocation of Factors of Production
III	Risk of GBV	V Confidence/Risk Preferences	IX Time Constraints/Care
		VI Finance and Assets	
		VII Networks and Information	

Women entrepreneurs also face barriers of access to capital and networks, and are further constrained by gender-based violence, legal barriers, and social norms. Access to skills and knowledge can be improved through the secondary education system. Female entrepreneurs can benefit especially from training in technical aspects of entrepreneurship.[52] Social and cultural norms regarding traditional gender roles can change over time through education, gender-responsive programming, and increased exposure to positive role models such as successful women entrepreneurs.

BOX 3
APTE PROGRAM IN SENEGAL

The **APTE (Amélioration des Performances de Travail et d'Entreprenariat)** program implemented in Senegal has incorporated youth employability and work-readiness training within general and technical secondary education in eleven of Senegal's 14 regions since 2016. Implemented through a partnership between the Mastercard Foundation, the Education Development Centre (EDC), and the Ministry of Education, the program works closely with the Ministries of Education and TVET, the private sector, and civil society organizations. Adapted from the **Akazi Kanoze** program in Rwanda (also funded by the Mastercard Foundation), APTE offers training in 21st-century and entrepreneurship skills, and facilitates school-to-work transitions for youth in secondary schools and TVET institutions.

The program also trains a set of national Master Trainers to train teachers in their curriculum, while building a network of community and business associations to support school-to-work transitions. APTE helped create entrepreneurship clubs in most participating schools, through which students are supported to design and implement income-generating activities, while also participating in visits by local employers and entrepreneurs.

A gender evaluation, mid-way through the five-year project, found that family expectations and relationships impacted young people's thinking regarding employment and entrepreneurship, with boys more focused on self-sustainability, while girls emphasized helping others. The expectation that girls would marry and leave the family negatively impacted parents' desire to invest in their daughters' education. The evaluation also found that stigma regarding non-traditional work and limited TVET opportunities hindered the transition to this type of work for both young women and men.

Source: Mastercard Foundation and Bersama International, "Beliefs About What Girls and Boys Should Do Limit What They Could Do: A Gender Assessment for the APTE-Senegal Project," April 2019.

BOX 4
ENTREPRENEURSHIP SKILLS TRAINING IN RWANDA, UGANDA, AND KENYA

Educate! is a non-governmental organization operating in Rwanda, Uganda, and Kenya that collaborates directly with the public-school system to offer work-readiness and entrepreneurship trainings, with a focus on gender equity. It focuses on equipping young students with the skills necessary for work and entrepreneurship.

Educate! especially encourages young women to explore entrepreneurship and other income-generating activities early on, and focuses on gender integration by training youth leaders and teachers on bringing gender equality and equity into the classrooms and teaching methods. Through its training on accessing finance and improving savings, it hopes to be able to promote risk-free capital accumulation that can enable female entrepreneurs to overcome the asset gap that women traditionally face (www.experienceeducate.org). Educate! also trains its mentors, teachers, and administrators to identify gender stereotypes faced by students and assists in the creation of strategies for empowering boys and girls equally in the classroom.

In 2016, Educate! commissioned an evaluation and found that among program graduates, there was an increase in average income, a 44% increase in business ownership, and a 50% increase in employment. Program graduates also showed a statistically significant improvement in public speaking, leadership, and other job-relevant skills. The evaluation also noted that girls experienced much larger relative impacts across most indicators (BRAC, 2016).

Based in part on this successful evaluation, the Government of Rwanda collaborated with Educate! to train its teachers in entrepreneurship and to improve entrepreneurship curriculum in all secondary schools across the nation. Starting in 2016, all secondary students were required to take an entrepreneurship course. Six months after completing secondary school, students were found to have acquired greater soft skills such as grit and were twice as likely to attend university compared to similar students not participating in the program.

Sources: Laterite, "Background Paper on Preparing Youth for the Transition to Work," (2019) and "Teacher Training and Entrepreneurship in Rwanda," Innovations for Poverty Action, accessed at https://www.poverty-action.org/study/teacher-training-and-entrepreneurship-education-evidence-curriculum-reform-rwanda January 17, 2021.

TECHNICAL AND VOCAIONAL EDUCATION FOR GIRLS AND BOYS

According to UNESCO, only 6% of youth at the secondary level are enrolled in Technical and Vocational Education (TVET) in Sub-Saharan Africa,[53] and girls are concentrated in lower paying sectors. These TVET enrolment rates are among the lowest in the world. In some countries, the trends in girls' enrolment in secondary TVET are worsening, as in Tanzania, where the share of girls dropped from 53% in 1995 to 12% in 2018.[54] Young women and men also enrol in different fields within TVET, with young women in sectors and occupations that are traditionally less well-compensated, such as secretarial, textiles, and human resource fields. Young women are particularly poorly represented in traditionally male-dominated fields such as ICT, architecture and mechanics.[55] This has significant implications: Women who choose to train in male-dominated sectors could potentially earn as much as three times that of women in female-dominated sectors.[56]

The Mastercard Foundation Report, *Secondary Education in Africa: Preparing Youth for the Future of Work (2020)*, **highlights a good practice in Namibia where all students are required to opt for two pre-vocational subjects in grades 8–10 (equivalent to lower secondary school).** These 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, metalwork, and plumbing. Four 40-minute lessons are allocated per week, and students are examined in these subjects alongside academic subjects. Passing these subjects counts for credits within the national qualifications' framework.[57]

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

SECTION 2:
RECOMMENDED ACTIONS

ENHANCING YOUNG WOMEN'S AND MEN'S SKILLS FOR WORK AND ENTREPRENEURSHIP

1. **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 and gender-responsive 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.

2. **Develop or implement special programs for girls focused on building STEM and ICT skills** and promoting girls' confidence and involvement in these subject areas and related activities. Extra-curricular activities such as coding clubs are an effective way to build technical skills while also fostering 21st-century skills such as communication, problem-solving, and collaboration. Governments, schools, and learning materials should promote female role models and mentors in the ICT and STEM sectors.

3. **In partnership with secondary schools, create scholarships to support women's entry into STEM fields at universities and in tertiary level TVET institutions.** Collaboration with the private sector to help fund such scholarships can increase their financial sustainability and visibility while helping to create pathways to employment and further education for women in STEM.

4. **Increase availability of entrepreneurship skills training in secondary level general and TVET education and ensure it addresses girls' needs.** Increasing time devoted to teaching skills needed for entrepreneurship, such as 21st-century skills as well as financial literacy and business management, is one promising approach. This can be done by creating a separate entrepreneurship course (as in Rwanda) or by integrating the topic into core subjects. Entrepreneurship skills training can also be effectively offered through clubs and other extra-curricular activities; it should promote girls' participation, particularly in sectors that are often better paying and where boys and men are over-represented.
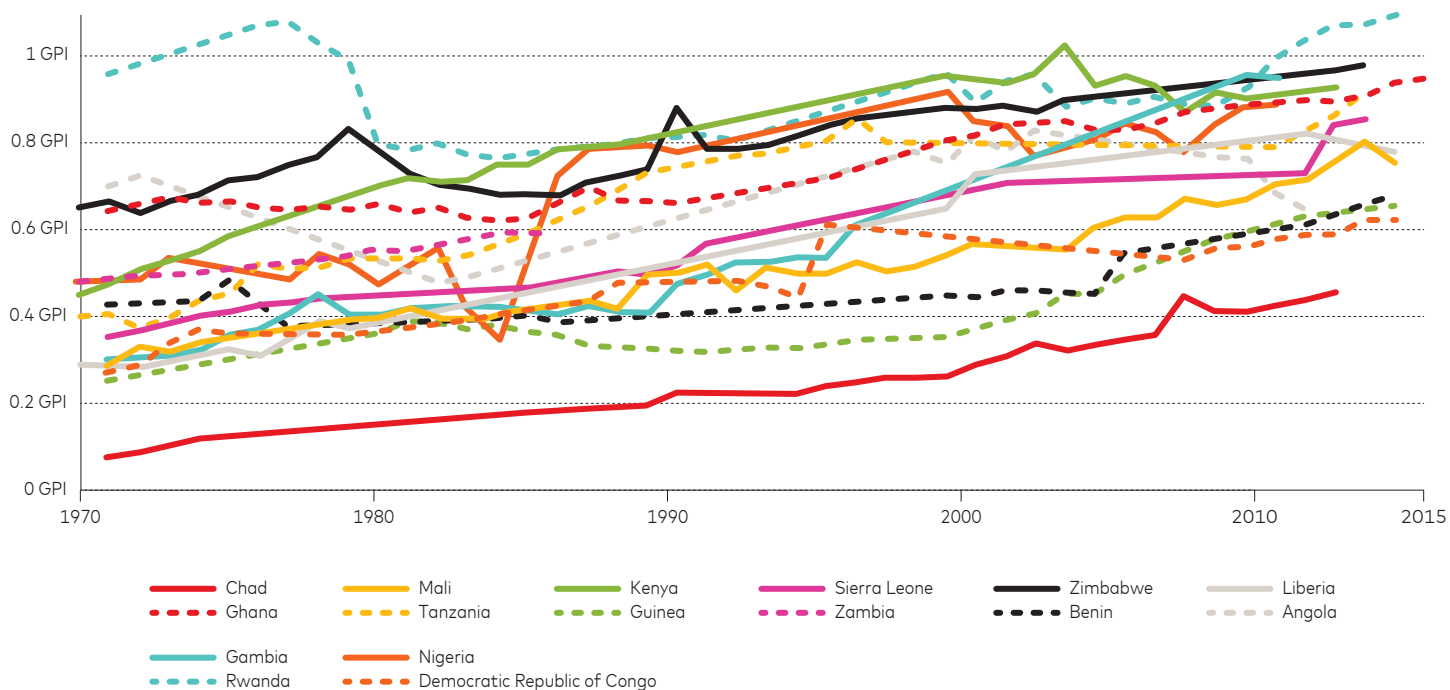
SECTION THREE

EQUITABLE SECONDARY EDUCATION FOR GIRLS AND BOYS

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

Africa has made significant progress at increasing enrolment and improving gender parity in education in both primary and secondary education. Since 2000, catalyzed by the Millennium Development Goal of universal primary school enrolment, many governments removed primary school fees, leading to huge enrolment gains. Since 2015, the Sustainable Development Goal 4 target of universal primary and secondary education has spurred many governments to expand access to education by offering free, universal basic education through lower secondary school, helping boost girls' attendance. Yet significant challenges persist, as will be discussed below. (Lower secondary education is often the second and final phase of basic education for many learners in Africa; it is followed by upper secondary education, which is the stage before tertiary education.)

Girls' rates of enrolment in secondary education have nearly reached that of boys in Sub-Saharan Africa, but significantly fewer girls complete secondary education. The gender parity index for gross enrolment in secondary education in Sub-Saharan Africa was 0.97 in 2018, indicating near gender equality. Yet this statistic obscures the inequity between boys and girls that occurs in many individual countries. The situation worsens when we consider completion of lower secondary school. For every 100 boys completing lower secondary in Sub-Saharan Africa, there are only 88 girls completing this level of education, and only 79 girls for every 100 boys completing upper secondary.[58]
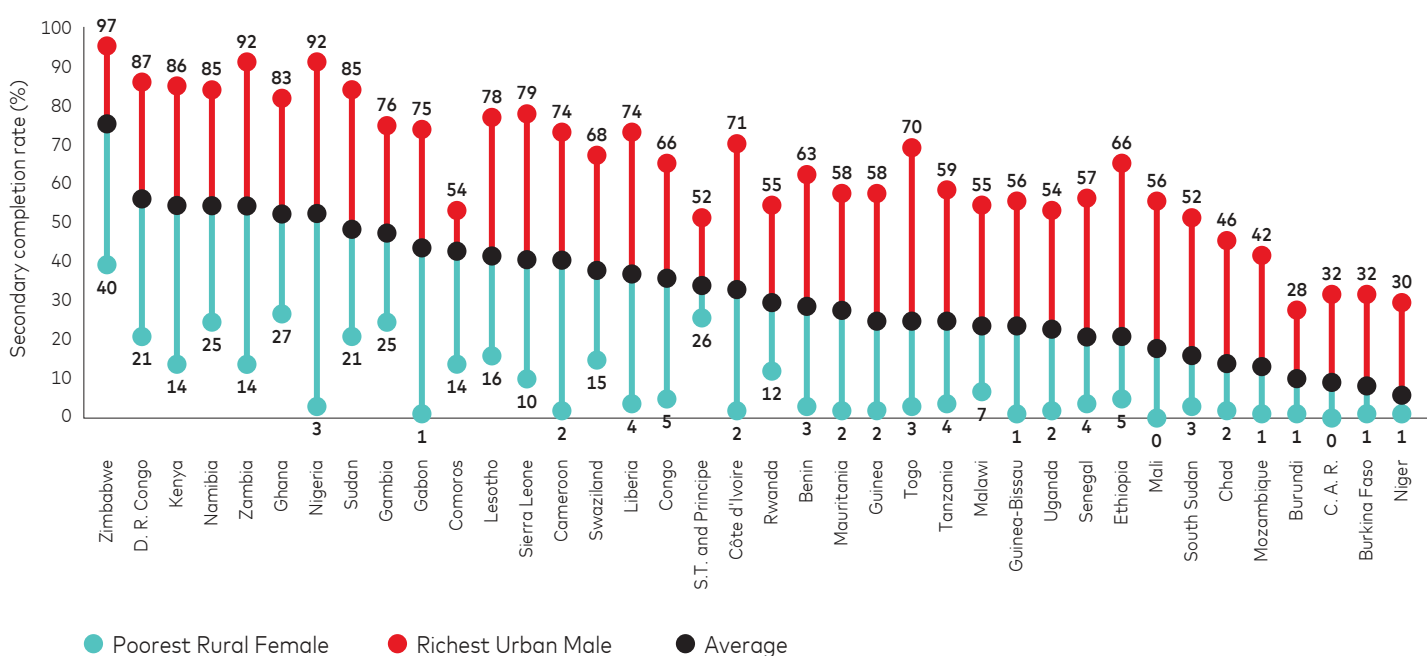
FIGURE 6
GROSS ENROLMENT RATIO, SECONDARY EDUCATION, GENDER PARITY INDEX (GPI), 1970–2015 BY COUNTRY

Source: World Bank, Our World in Data, accessed February 24, 2021.

While girls' rates of enrolment in secondary education are improving overall, significant equity gaps remain: Only a very small share of the poorest girls attend and complete secondary school. Across dozens of countries in Sub-Saharan Africa, far fewer than a quarter of the poorest rural female students complete lower secondary school. In 21 countries for which data was available, just five percent or fewer poor, rural girls complete lower secondary school (see Figure 7). In Benin, Chad, and Togo, boys complete upper secondary school at more than twice the rate of girls.[59]

FIGURE 7
LOWER SECONDARY COMPLETION RATES BETWEEN ADVANTAGED CHILDREN AND THEIR DISADVANTAGED PEERS

Source: Zubairi and Rose, 2018 using UNESCO-WIDE database (2017, 10).

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

Additionally, many millions of girls of secondary school age in Sub-Saharan Africa remain out of school altogether. In 2018, 37% of lower secondary school age young people were out of school, while 58% of upper secondary school age young people were out of school in the region.[60] Because of gender gaps as well as other factors such as social expectations and household duties, girls make up the majority of out-of-school young people. Improving rates of enrolment and completion of girls in secondary school will be vital to ensuring girls reach their human potential, allowing them to contribute to the prosperity of African economies and societies.

Girls and boys are profoundly affected by Africa's learning crisis. Very few assessments are available to measure learning across countries, but those that exist show that learning levels of both boys and girls are quite low for a large share of students. On the SACMEQ exam assessing mathematics and reading proficiency in Southern and Eastern Africa, a third of sixth-grade students performed no higher than the "basic reading" and "basic numeracy" levels in all participating countries.[61]

FIGURE 8
LEARNING LEVELS IN SUB-SAHARAN AFRICA COMPARED TO OTHER REGIONS

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.

Overall, despite significant gains in enrolment over the past 25 years, girls face a variety of barriers that continue to limit their access to, continued enrolment in, and completion of secondary school, particularly among poorer groups and in rural areas. These barriers include: cultural norms that undervalue girls' education and lead them to stay home and assist in domestic work; school fees; non-fee-related costs; early pregnancy and child marriage; sexual violence; and a lack of single-sex hygiene facilities.

ADOLESCENT PREGNANCY PREVENTS MANY GIRLS FROM ACCESSING SCHOOL BUT POLICY AND PROGRAMS CAN ADDRESS THIS

Pregnancy is a significant issue keeping girls out of school and creating an obstacle to their re-entry. Rates of early pregnancy in many Sub-Saharan African countries are among the highest in the world,[62] and relatively few young women re-enter school after having a child.[63] Social attitudes about marriage and the value of girls' education compound the risks pregnant girls face of not completing secondary school.

While necessary to protect public health, stay-at-home orders associated with the pandemic increase rates of adolescent pregnancy and multiply the number of girls unable to attend school after the pandemic. Between March and June 2020, when lockdown orders were in place, adolescent pregnancies reported in Turkana County, Kenya, tripled.[64] UNESCO also estimates that early marriage resulting from increased levels of poverty caused by the pandemic will further increase early pregnancy in Sub-Saharan Africa, where 35% of women between age 20 and 24 were married before they reached age 18, and 11% were married before age 15.[65]

Formal policies excluding pregnant girls and young mothers from school pose an economic disadvantage for countries adopting them. Such policies are also a violation of human rights. While a growing number of African countries have enacted laws and policies to protect the right of pregnant girls and young mothers to attend school, as many as 24 African countries lack them.[66] Malawi, Kenya, and Gabon are among the countries that have adopted "re-entry" or continuation policies for pregnant girls and young mothers, yet implementation is uneven, and many girls are still prevented from attending secondary school, due to lack of enforcement, social pressures and insufficient childcare.[67]

Activism, accountability measures, and public pressure have led to the reversal of policies keeping pregnant adolescents from attending school. In 2015, Sierra Leone adopted a ban preventing pregnant girls from attending school. After several years of public activism, the Court of

Justice of the Economic Community of West African States ruled the ban was discriminatory and forced the lifting of the ban.[68] While early pregnancy has declined in Sierra Leone in recent years, at least 20% of school age girls in Sierra Leone still remain out of school due to pregnancy.[69]

Alternative education programs can help pregnant girls and young mothers by providing a bridge back to school. The Learning Links Project in Liberia, supported by USAID, allows 2,500 teen girls who have left school due to pregnancy to access education. The Project provides innovative, safe, and monitored learning environments, and[70] flexibility in the delivery of the curricula for both general and technical secondary education to accommodate young mothers dividing their time between learning, child care, and other responsibilities.

Global evidence indicates that comprehensive sexuality education programs increase the likelihood that young people use protection against unwanted pregnancy and sexually transmitted infections.[71] Such education programs also help young people gain skills to promote healthy relationships, communication regarding sex, and reduce gender-based violence. In 2013, 21 governments in Eastern and Southern African committed to offering these programs in schools and a recent scorecard showed that 13 of 15 Sub-Saharan African countries tracked offered such programs. Challenges nonetheless exist in ensuring that these programs include the necessary subject matter despite taboos regarding discussion of issues such as sexual orientation and use of contraception. The many benefits of such education when directed at both boys and girls may also include increasing boys' understanding and support of girls during menstruation, thus helping to improve girls' school attendance.

ALTERNATIVE, ACCREDITED SECONDARY EDUCATION FOR YOUNG MOTHERS IN TANZANIA[72]

Elimu Haina Mwisho — Skills Development Program for Young Mothers in Tanzania

Elimu Haina Mwisho is a skills development program that gives a second chance for young mothers in Tanzania to continue with their secondary education through Folk Development Colleges (FDCs). Tanzania has one of the highest rates of child marriage globally.[*] One in every four girls becomes pregnant between the ages of 15 and 19 (TDHS 2015/16), typically during the secondary school years. As a result, more than 5,500 adolescent girls are either forced to dropout or expelled from schools every year due to pregnancy.[**]

In 2017, a partnership between Tanzania's Ministry of Education, Science, and Technology (MoEST), Aflatoun International, and the Karibu Tanzania Organization (KTO) was developed to provide young Tanzanian mothers with an alternative pathway into secondary school or university and to prepare them for employment or entrepreneurship.

In 2018, **Aflatoun** and **KTO** partnered with three of the country's **55 FDCs** to offer young mothers accredited secondary education that is fully recognized by the state. In 2019, the program was scaled to include 20 FDCs and it eventually grew to 41, with 11 of these supported by the Swedish Development Agency.

In addition to studying the secondary curriculum, participants receive vocational, entrepreneurship, and life-skills training. Through close collaboration with KTO, MoEST subsidized the program and mainstreamed it within the FDCs, fully covering the course fees and examination costs, which participants originally had to cover. During the COVID-19 pandemic that led to a three-month closure of the FDCs, KTO delivered the secondary education via Open Distance Learning (ODL), broadcasting recorded lessons on radio and television.

To ensure that young mothers can fully participate in school, the MoEST directed all participating FDCs to provide free childcare services from 7:30 am to 3:30 pm. To date, a total of 34 daycare centres have been established and others are under development.

*UNICEF - https://data.unicef.org/topic/child-protection/child-marriage/ accessed February 23, 2021. **Human Rights Watch, "Tanzania: World Bank Disregarding Ban on Pregnant Schoolgirls," January 27, 2020.

While removing legal barriers is a key first step, governments can also address some of the non-legal barriers that keep pregnant girls and young mothers out of school. Rwanda, for example, has removed primary and secondary school fees and targeted financial support to girls at risk of dropping out. Facilitating access to sexual and reproductive health services, including comprehensive sex education and voluntary access to contraception is crucial for empowering girls to make decisions around their reproductivity. South Africa provides financial support to adolescent mothers. Schools in Senegal and Cape Verde offer special accommodations for young mothers, such as time for breastfeeding or to care for sick children. Gabon provides childcare centres near schools, while Zambia offers girls the choice of morning or evening school shifts.[73]

GENDER-BASED VIOLENCE CONTINUES TO BE AN OBSTACLE TO GIRLS COMPLETING SECONDARY SCHOOL

According to UNESCO, school girls are more likely to be victims of verbal or sexual abuse and violence.[74] In Sub-Saharan Africa, girls report that teachers demand sexual favours for good grades or preferential treatment in class.[75] Any form of violence in school can undermine learning and hinders the ability to provide inclusive, quality education. Simply the threat of violence can pose a barrier to girls attending school, as they or their parents fear harm to them on the way to, or in, school. Gender-based violence and other forms of violence in school have consequences such as "severe health and psychological harm, pregnancy, HIV or other sexually transmitted infections."[76]

Governments, school districts, and school management can take a variety of measures to prevent gender-based violence. The UN Girls Education Initiative recommends a "whole-school" approach, including minimum standards and monitoring. Governments can also embed gender-based violence prevention within education sector plans and dialogues, laws and policies, gender-responsive curriculum, and the requirement of support from school leadership.[77] Additionally, involving boys and men alongside women and girls in training to prevent gender-based violence and promote healthy environments and safe spaces has been a key to success for programs carried out by Promundo in Rwanda, Democratic Republic of Congo, and Brazil.[78]

Some African governments are implementing a multi-sectoral approach, including national surveys, police, the criminal justice system, and all levels of education. For example, the Southern African Development Community adopted such a multi-sectoral strategy at the regional level for 2018–2030 that fosters coordination by governments in the region and seeks to improve prevention and mitigation of gender-based violence, and transform gender discriminatory cultures, attitudes and behaviour.[79]

Some governments and teachers' unions in Africa have begun to take formal steps to curb gender-based violence in schools. In 2018, Namibia, in partnership with UNICEF, implemented a National Safe Schools Framework, which includes measures to prevent and take action against violence and self-harm by maintaining safe schools and encouraging the reporting of violent incidents.[80] Kenya's government has implemented a program for reporting and responding to gender-based violence in schools. Zambia's revised curriculum seeks to transform the norms and relationships between boys and girls to prevent gender-based violence. Teachers' unions in Ethiopia, Sierra Leone, South Africa, Uganda, and Zambia have adopted codes of conduct against school-related gender-based violence to support teacher professionalism. Despite such efforts, data on gender-based violence in schools remains limited, in part due to victims' reluctance to report abuses, or authorities' failure to record instances of violence within their schools.[81]

Improving the safety of school facilities is especially crucial for young women and girls in conflict-affected areas and refugee camps. These girls face increased risk of gender-based violence and discrimination, including sexual violence and child marriage.[82] The fostering of safe, girl-friendly classrooms and schools can improve access and learning for displaced and refugee girls. Other effective interventions may include safe travel to and from school, reinforced school infrastructure and boundaries, negotiations with armed groups, the provision of on-site housing for students or school security through armed guards or armed community defence groups, the use of alternative schedules, distance education, as well as the relocation of students and schools.[83] Recruiting more female teachers may also contribute to creating more girl-friendly teaching and learning environments; this 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.[84]

New teacher induction 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 practiced, despite there often being laws prohibiting it. Pre-service education educates new teachers in positive discipline, professional ethics codes, and sanctions for violations.[85] While innovation in this area, led by NGOs, has drawn attention to school violence, that attention remains sporadic. To address this, Togo has developed a harmonized training manual on the protection of children from gender-based violence at school, based on insights from NGO and government training programs.[86]

ACCESS TO SINGLE-SEX SANITATION FACILITIES CAN IMPROVE THE INCLUSIVENESS OF SCHOOLS

Access to single-sex sanitation facilities can help create a safe space for girls and lead to greater inclusiveness of secondary schools. Thousands of schools across Sub-Saharan Africa lack the basic sanitation facilities essential for menstrual hygiene. Upper secondary schools are more likely to have single-sex toilets than lower secondary schools. For example, in Eritrea and Liberia, only approximately 40% of lower secondary and less than 50% of upper secondary schools had basic single-sex sanitation facilities in 2018.[87] While evidence on whether menstruation is a factor in school absenteeism for young women in Sub-Saharan Africa is mixed,[88] availability of single-sex hygiene facilities appears to promote school attendance.
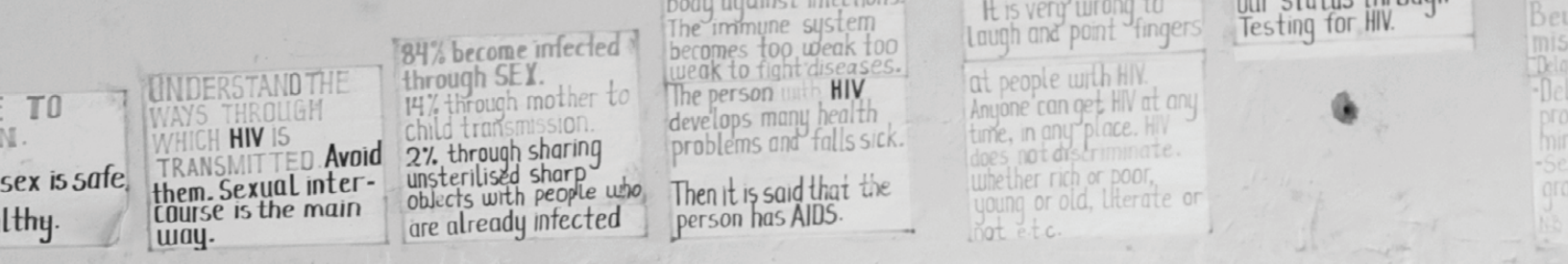
Recent research in Ghana shows that adequate water, sanitation, and hygiene in schools can improve menstrual hygiene management, school attendance, health, and cognitive development of students. They found however that positive effects depended on girls' attitudes towards these facilities — which in turn is shaped by how the school engages students and the community as the facilities are introduced.[89]
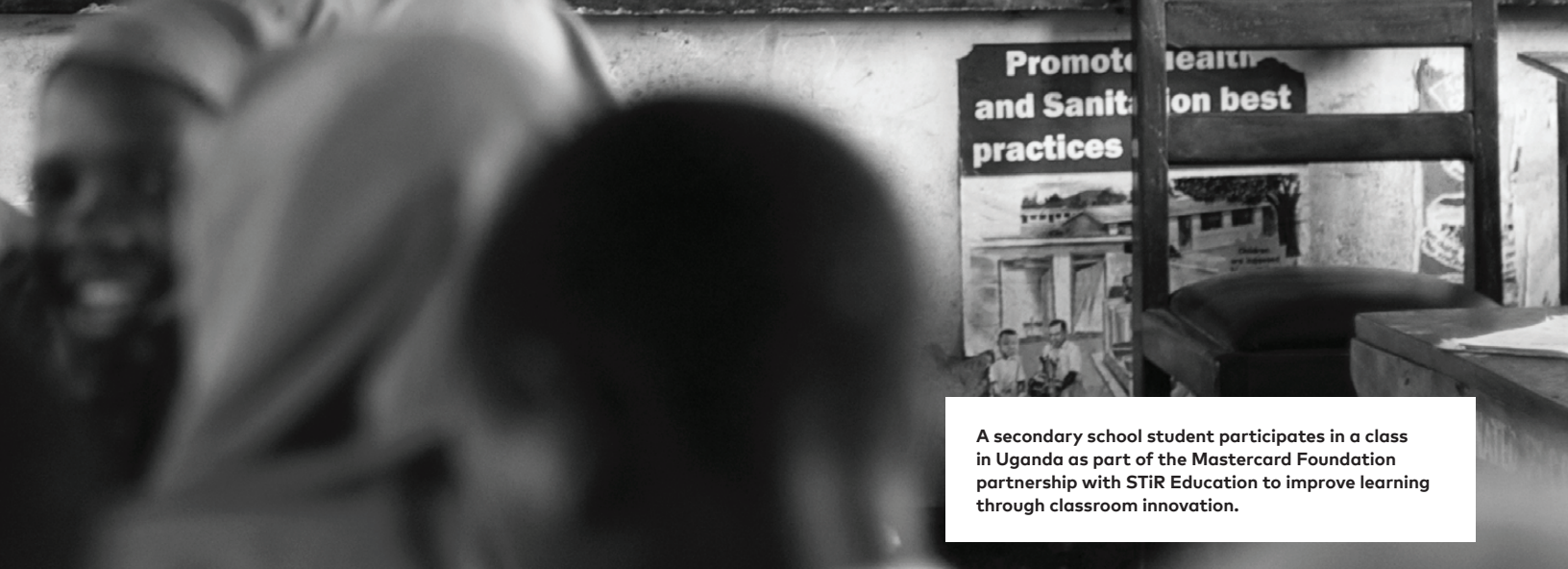
SECTION 3:
RECOMMENDED ACTIONS

EQUITABLE SECONDARY EDUCATION FOR GIRLS AND BOYS

1. **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 costs such as uniforms, transport, and boarding. Target funding formulas to disadvantaged regions, schools, or groups.

2. **Take actions to ensure access to quality, relevant education for pregnant girls and young mothers.** This includes removing policies, laws, and practices that prevent pregnant girls and young mothers from attending school. Offer childcare services at or near schools, and provide space and time for young mothers to breastfeed. Equip young mothers with work-relevant skills. Implement or expand alternative education and bridging programs to help young mothers catch up on time spent out of school and to re-enter the formal education system.

3. **Establish and formalize alternative pathways between non-formal and formal education with portable accreditation to increase access for out-of-school youth.** Create more flexible secondary systems to offer large numbers of youth alternative education pathways that allow for re-entry into formal schooling, including young women excluded due to pregnancy.

4. **Address factors that contribute to school-related gender-based violence, adopting a whole-school approach wherever possible.** Schools should implement gender-responsive curriculum that addresses norms around violence. An environment that prohibits such violence and supports gender equality starts with demonstrable support from school leaders and extends to all teachers and staff.

5. **Create safe school environments that foster gender equity and learning for all.** Making school travel safer and reinforcing school infrastructure and boundaries can create safer spaces for young people regardless of gender. In conflict-affected areas, creating safe school environments may be facilitated by negotiations with armed groups. Increasing the share of female teachers and providing access to single-sex sanitary facilities can help prevent gender-based violence and create an environment in which girls feel safe, included, and able to learn.

SECTION FOUR

PREPARING TEACHERS AND TVET INSTRUCTORS TO SUPPORT LEARNING

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.
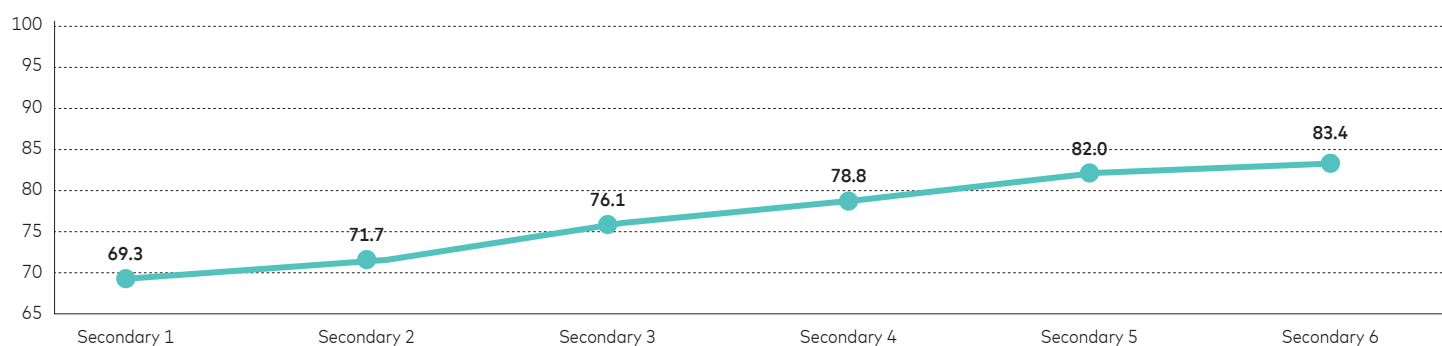
Teacher quality is the single most important influence on learning outcomes at the school level. High-quality teachers can enhance students' well-being and future economic outcomes. Outstanding teaching may also improve equity by helping disadvantaged students make up previous 'learning deficits'.[90]

In most African countries, female secondary teachers are underrepresented, especially in STEM. In 25 countries, women make up less than 30% of the secondary teaching workforce; in others, much less. In Liberia, for example, women made up only 6% of secondary teachers in 2017. The only countries where women constitute over half of the secondary teaching workforce were Namibia, Lesotho, and South Africa. A lack of female teachers is frequently identified as a significant deterrent to girls' attendance, particularly where gender-based violence and discrimination are common; some studies also link lack of female role models to girls' learning outcomes in general, and in STEM in particular.[91] An examination of secondary school STEM teachers in Rwanda found that the share of male teachers increased at each grade level, and men were over-represented even when controlling for teachers' level of qualification.[92]

FIGURE 9
PERCENT OF SECONDARY SCHOOL STEM TEACHERS WHO ARE MALE — RWANDA

Source: Laterite, "A Situational Analysis of Secondary level STEM and ICT Education in Rwanda," February 2018 for the Mastercard Foundation.

A recent study of 10 francophone African countries found that girls performed better in reading and math when they had a female teacher. Based on a PASEC learning assessment of over 30,000 sixth graders in 10 francophone African countries, the study found that girls scored higher than boys in both reading and math when taught by female teachers.[93] Closing the gender gap of teachers may improve equity in learning outcomes in three ways: first, as teachers serve as role models raising the aspirations of their students; second, in creating a more gender-equitable classroom; and third, female teachers may help support safer learning environments for girls that are characterized by less gender-based violence.[94] Further evidence from Sub-Sah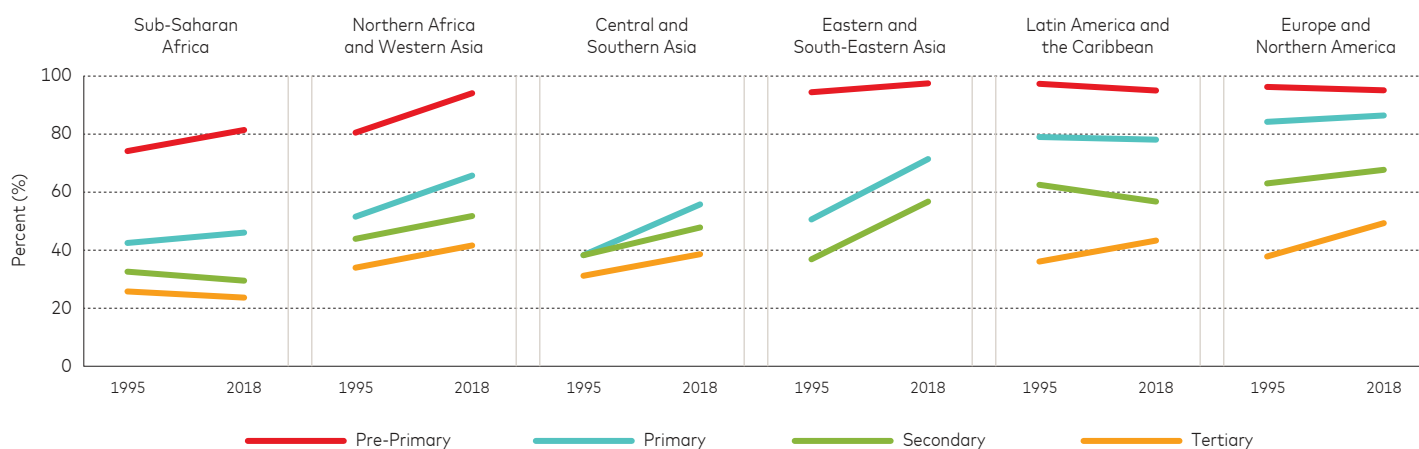aran Africa shows that girls are more apt to attend school, and parents are more willing to send them and encourage their continued enrolment, when female teachers are in place.[95]

Sub-Saharan Africa will need 10.8 million additional teachers to meet the demand for quality, relevant secondary education by 2030.[96] In 2014, UNESCO 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.[97] While some countries such as Zambia have accelerated recruitment into teacher training programs,[98] at least 11 African countries will not meet demands for lower secondary level teachers at current rates of growth.[99]

Unmet demand for secondary school teachers and the underrepresentation of female teachers at the secondary level, create an employment opportunity for young women. Sub-Saharan African governments will need to significantly expand teacher training to accommodate increasing numbers of students entering the secondary level. This, combined with efforts to close the gender gap in the teacher workforce in Africa, could generate millions of jobs, while also contributing to the economy and improving the quality of education. Challenges are expanding and improving the region's teacher training institutions, and supporting more girls to enter STEM fields in order to meet the demand for female teachers, especially in STEM subjects.

FIGURE 10

THE PERCENTAGE OF WOMEN IN TEACHING POSITIONS AT ALL LEVELS OF EDUCATION, BY WORLD REGION

Percentage of female teachers, by region and level of education, 1995 and 2018

Source: UNESCO, "A new generation: 25 years of efforts for gender equality in education," UNESCO Global Education Monitoring Report, 2020, 46.

PRE-SERVICE AND IN-SERVICE TEACHER EDUCATION

Improving the quality of teacher education is a critical strategic intervention point. Countries such as Singapore, Vietnam, and the Republic of Korea point to the meaningful educational and economic returns on investments at this early stage.

Pre-service education must be updated to develop critical skills in learner-centred and gender-responsive 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 staff rarely model interactive methods, so trainees have little experience of active learning themselves.[100] New teachers need help developing 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.

Where teacher candidates lack proficiency in 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. 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."[101]

When in-service training helps existing teachers update their skills and knowledge, deliver new curricula, and adopt new pedagogies, learning outcomes improve. 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.[102] 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.

GENDER-RESPONSIVE PEDAGOGY AND LEARNING MATERIALS CAN SUPPORT GENDER EQUITABLE LEARNING

Teachers also play an important role in setting expectations of students and relaying attitudes regarding gender and minority groups. Expectations and attitudes of teachers can shape how boys and girls think about their gender roles and their aspirations, both academically and professionally. Additionally, when teachers have different expectations about girls' and boys' abilities, these expectations can impact learning outcomes and student achievement.[103] Evidence from a variety of countries has shown that teachers are more likely to characterize boys' behaviour as disruptive, while they may believe girls are less likely to perform well in STEM subjects such as math. Studies have shown that girls studying with teachers who had implicit gender bias performed less well in math and were directed towards less challenging secondary schools. Educators, when properly prepared, can help boys and girls explore their identity, gain self-confidence, and develop their skills while discouraging promotion of stereotypes.[104]

Gender-responsive pedagogy can help teachers recognize and address their implicit biases, while supporting all students' learning and aspirations. The Forum for African Women Educationalists promotes gender-responsive pedagogy in several Sub-Saharan African countries, starting with teachers at the earliest levels, and supports teachers to create classroom environments with greater gender awareness that enhances girls' self-esteem. Teachers require training, knowledge, and skill in order to create a gender-responsive classroom, promote inclusion and gender equality, reduce discrimination, and support boys' and girls' learning equally. In 2019, Uganda implemented a National Teacher Policy with guidelines to equip teachers with basic knowledge and skills on gender issues and the use of gender-responsive pedagogy.[105] Whole-school approaches that go beyond teacher training have been found especially effective in promoting boys' and girls' acceptance of diverse roles and in challenging stereotypes. Programs that most effectively promote these changes use a whole-school approach, involving school leaders, effective staff training, appointing a gender champion in the school, and availability of adequate, quality resources.[106]

Textbooks and learning materials are key tools in creating inclusive learning environments and addressing gender stereotypes that negatively affect both boys and girls. Textbooks are sometimes the only books young people are exposed to, and thus can have a powerful influence on students' formation of gender identities and norms, perpetuating harmful stereotypes — or helping to overturn them. Because gender norms impact young people's aspirations and school achievement, it is important that they inspire and support every student's full potential. UNESCO found that in many countries, girls and women are underrepresented in textbooks. When they are depicted, it is often in traditional roles, including relating to family or education. In Uganda, for example, the pervasive use of gendered nouns (for example, boy) and pronouns such as "his" created gender connotations within the text, and illustrations most often depicted men.[107]

Revising textbooks to make them more inclusive, by removing stereotypes and promoting more positive images of girls and women, is difficult to do well. An inclusive approach uses diverse language, represents a wide set of groups including girls and women, and represents a broad set of stakeholders in their design and distribution. Case studies have revealed that though some progress is being made, significant challenges remain in changing textbooks to make them more gender responsive, even with a country's commitment to do so. Comoros took over production of its textbooks from France in 2015 and with commitment of the education ministry to promote gender equality through education, some improvements in gender-responsiveness of textbooks were found.[108] Yet further progress has been hindered by personal familial, social, and religious influence of those involved. In Ethiopia, despite the government's commitment, women did not participate in efforts to develop gender-inclusive textbooks, even though a study on textbooks for social studies courses in grades 5 to 8 revealed that only 12% of names incorporated were female.[109]

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

SECTION 4:
RECOMMENDED ACTIONS

PREPARING TEACHERS TO SUPPORT LEARNING FOR GIRLS AND BOYS

1. **The education sector has the potential to generate dignified and fulfilling employment for young people. Expand teacher recruitment to fill projected gaps (10.8 million secondary school teachers by 2030), focusing especially on female teachers.** 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. Expanding recruitment and training on this scale will depend on a substantial increase in education sector spending and in the efficiency of that spending. An emphasis is needed especially on recruiting young women to become teachers in STEM fields.

2. **Foster a virtuous circle of excellent teaching and learning by Investing 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 over hiring and upgrading the skills of untrained teachers. 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.

3. **Increase the attractiveness of teaching as a career** to recruit more high-quality candidates. This may be accomplished by improving teaching conditions, paying for teaching bursaries particularly for female teachers, providing housing to teachers especially in rural areas, and recognizing teaching excellence through prizes.

4. **Incorporate gender-responsive pedagogy and approaches addressing both boys and girls into pre-service and in-service teacher training.** Governments can create national teacher policies that require training in gender-responsive pedagogy and offer guidelines for this training. Adopt a whole-school approach that goes beyond teacher training to include school leaders and identifies a gender champion at each school.

5. **Develop textbooks and learning materials that are free of stereotypes and that represent women and excluded groups equally to men.** Ensure that women and all groups in textbooks and materials are depicted in a full range of roles, including professional and scientific positions. Inclusive textbooks that are representative and affirming of all of society are best developed through an inclusive process that involves a wide range of stakeholders. Partnerships can help facilitate such an approach, which should extend through the design, creation, implementation, and distribution of textbooks and learning materials.

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