ACET African Center for Economic Transformation

Youth Employment and Skills (YES) Multi-Country Study

STRENGTHENING EDUCATION AND LEARNING SYSTEMS TO DELIVER A 4IR-READY WORKFORCE

UGANDA
COUNTRY REPORT

The African Center for Economic Transformation (ACET) is a pan-African economic policy institute supporting Africa's long-term growth through transformation. We produce research, offer policy advice, and convene key stakeholders so that African countries are better positioned for smart, inclusive, and sustainable development. Based in Accra, Ghana, we have worked in nearly two dozen African countries since our founding in 2008.

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ACRONYMS

41R	Fourth Industrial Revolution
BTVET	Business, Technical and Vocational Education and Training
ESSAPR	Education and Sports Sector Annual Performance Report
ESSP	Education Sector Strategic Plan
ICT	Information and Communications Technology
ILO	International Labour Organization
MoES	Ministry of Education and Sports
MoFPED	Ministry of Finance, Planning and Economic Development
MoGLSD	Ministry of Gender, Labour and Social Development
NCDC	National Curriculum Development Centre
NDP	National Development Plan
NEET	Not in Education, Employment or Training
NFE	Non-Formal Education
SESEMAT	Secondary Science and Mathematics
STEM	Science, Technology, Engineering and Mathematics
TIET	Teacher Instructor Education and Training
TISSA	Teachers' Initiative in Sub-Saharan Africa
UBoS	Uganda Bureau of Statistics
UNHS	Uganda National Household Survey
UPE	Universal Primary Education
YES	Youth, Employment and Skills

Executive Summary

The overall objective of this study is to examine how education and training systems in Uganda are adjusting to meet evolving labor demand, considering the changing nature of work. The study explores youth employment and skills challenges and opportunities. It reviews the structure and composition (demographic, education and skills) of the workforce; the policies, regulations and institutional arrangements for boosting job opportunities for youth and ways to implement innovative education and training initiatives that harness digital technology; the impact of digital technologies on job creation and the nature of skills needed; and the effects of COVID-19 on the education system and labor markets.

The study adopted a mixed approach involving desk reviews, quantitative and qualitative analysis. The analysis was based on the triangulation of information from desk reviews of documents (government and non-government) on youth employment and skills and primary data collected. The study adopts an analytical framework based on five levers that drive supply and demand: curricula, teacher training, career guidance, physical and digital infrastructure and lifelong learning.

Based on the findings, this study makes the following recommendations:

- The government and policymakers should engage employers to provide information and guidance to ensure that curricula align with market needs and produce a 4IR-ready workforce.
- Institutions should focus on producing confident students with both practical and soft skills since the job market requires not only ICT but also interpersonal and problem-solving skills.
- The government should facilitate internet access for online courses, making it mandatory for teachers to upskill every two years.
- The government should support continuous learning for trainers through annual conferences, seminars, short courses and refresher training on career development and life-long learning.
- Workshops and career guidance sessions should be included in all schools, with qualified career counsellors employed to guide students on career choices.
- Vocational and ICT skills should be taught at all levels of education.
- Internship periods for Business, Technical and Vocational Education and Training (BTVET), college and university students should increase as needed so that they are long enough to enable students to gain employable skills and work environment ethics.
- The number of teachers, especially for STEM subjects, should increase to create more time for beneficial learning and integration of more practical sessions, with the balance shifting to 70 percent practical and 30 percent theory for BTVET institutions in particular.

- BTVET should be centralized by the government instead of the current approach, which includes programs and projects scattered across various ministries, departments and agencies.
- The TVET Council should prioritize the dissemination and popularization of TVET policy to cure the negative attitude towards technical subjects among the public.

Part 1. Study overview

1.1. Background to the study

This study is part of a six-country project on Youth, Employment and Skills (YES) and the changing nature of work. The project examines education and training systems and their ability to adjust to meet evolving labor demand in light of rapidly evolving digital technologies and the Fourth Industrial Revolution (4IR). The six countries are Côte d'Ivoire, Ethiopia, Ghana, Niger, Rwanda, and Uganda.

The project evaluates the policies, regulations and institutional arrangements aimed at boosting educational outcomes and employment opportunities, especially job creation using innovative education and training initiatives.

Currently, many young Ugandans, especially girls, do not complete lower and upper secondary (MoES, 2018) and take up irregular employment; nearly 40 percent of them work fewer than 20 hours per week, a sign of time-related underemployment. Most youth spend more than a year searching for a job to complete the school-to-work transition (SWTS, 2015). In this light, Uganda is recognizing the urgent need for tailored strategies that (i) promote job creation and boost productivity in labor-intensive sectors, and (ii) ensure that young people have the skills for productive and fulfilling future work.

1.2. Objectives of the study

The overarching objective of the study is to examine the YES challenges and opportunities in Uganda. The study reviews the structure and composition (demographic, education, and skills) of the workforce as well as the policies, regulations, and institutional arrangements aimed at implementing innovative education and training initiatives and boosting employment opportunities for youth. It discusses digital technologies, job creation, and the skills needed for 4IR. And it discusses the effects of COVID-19 on the education and labor markets. The study focuses on five main questions:

1. How is labor demand in industry changing in the face of digital technologies?
2. What is the current level of mismatch between labor supply and the demand for skills, and what are the implications for employment?
3. How are education and training systems responding to the changing nature of work in Uganda?
4. What role is industry playing to ensure that education and training systems are producing the right workforce?

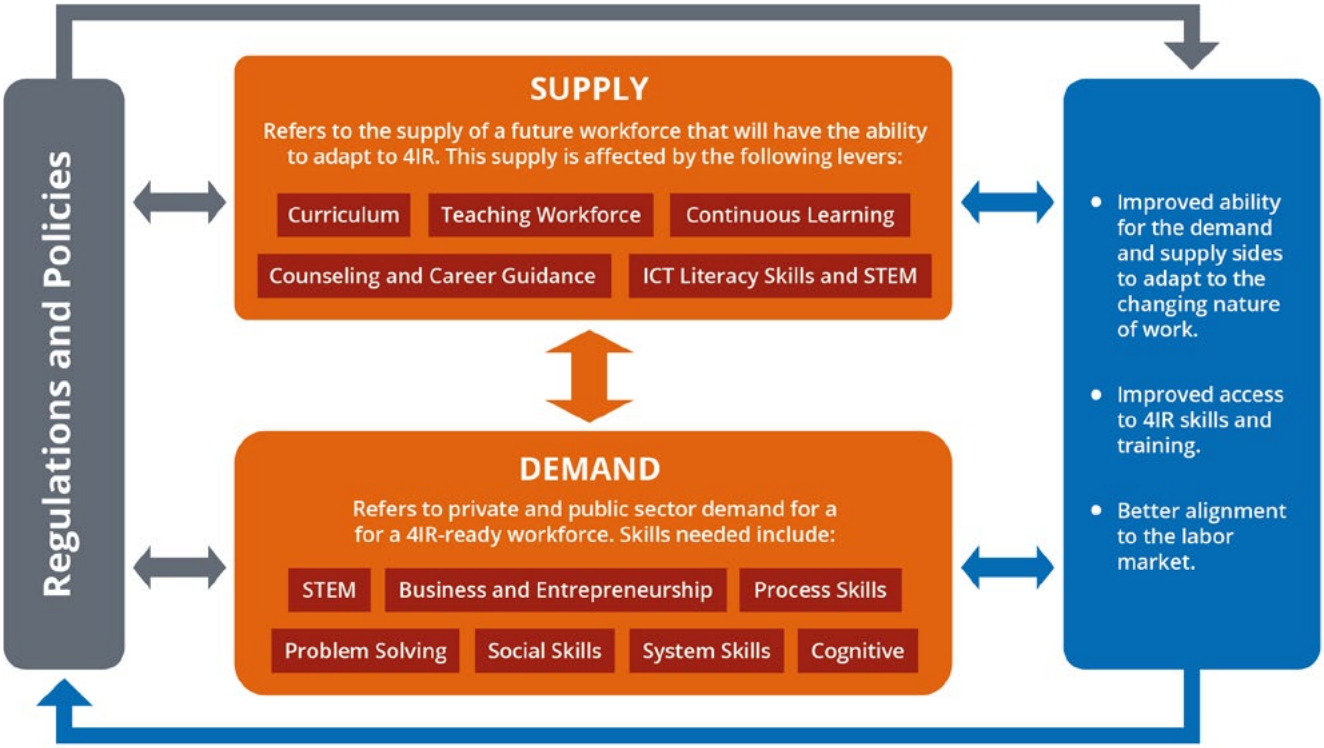
5. What are the likely effects of COVID-19 on the demand and supply of digital technologies in education and employment, and how has COVID-19 affected the adoption rates of technologies?

The answers to these questions are critical for informed decision making on how to restructure education and training systems to meet the key challenges of rapid youth population growth, skills mismatch and the changing nature of work.

1.3. Analytical framework

Figure 1 provides the analytical framework for the study. Policies and regulations are fundamental drivers for alignment of the education and skills development systems with the changing world of work. They influence the supply, quality, and relevance of the workforce in terms of hard skills as well as crucial soft skills such as critical thinking, analysis, problem solving and communication.

Figure 1. Analytical framework



The study examines how the following five education-related levers drive supply and demand factors:

- Ensuring the alignment of curricula with the changing needs of the labor market.
- Investment in developing and maintaining a professional teaching workforce ready for 4IR-relevant pedagogical approaches, skills, and subjects.
- Early exposure to the workplace through internships and apprenticeships, with early access to career guidance counsellors and career fairs.
- Physical and digital infrastructure development for safe buildings, high access to computers and internet, and frequent classes to develop ICT skills.

- Creating a culture of lifelong learning, with both demand and supply sides ready to continuously adapt to changing skills demands.

Supply refers to the present and near-term supply of labor and covers youth—i.e., students; fresh graduates; employed; and those not in education, employment, or training (NEET)—while demand refers to employers who use these human resources for production.

The top and bottom arrows in Figure 1 represent the use of regulations to drive reform in a continuous process aimed at reducing the time and strengthen the capacity for the market to adapt to new technology. Access to education is defined as physical (distance, facilities, human resource) but the costs (tuition uniforms, transportation, feeding) and the socio-cultural norms that govern access are also considered. From a financial aspect, school attendance is sometimes discouraged due to the fact a young person attending secondary school can be seen as a source of income loss from labor activities, particularly in rural areas.

This study also explores the key drivers and challenges to education access and examines the quality and relevance to the workforce of each of these education levers, with inputs and recommendations from the demand and supply side.

1.4. Methodology

Information and data were collected through desk reviews of development literature and official documents, backed by primary research using quantitative and qualitative (including gender-responsive) research methods. The study was carried out between 2019 and 2020, with inception meetings taking place from August to September 2019.

Part 2. Country overview

2.1. Economic, demographic and political landscape

The 1995 constitution provides for a multi-party system and decentralized governance. Uganda has enjoyed macroeconomic stability, single-digit annual inflation and stable exchange rates, with economic growth averaging six percent since 2000. However, this growth has widened income inequalities and has not created enough decent and productive jobs for the growing population, especially among women and youth. Government interventions, such as the Youth Livelihood Program, Entandikwa Scheme and Uganda Women Entrepreneurship Program have had mixed outcomes due to weak integration and coordination. While GDP per capita has averaged US$750 since 2010, the National Development Plan aims for lower middle-income status by 2019-2020 with income per capita of US$1,039 and for upper middle-income status with per capita income of US$9,500 by 2040 (NPA, 2015).

GDP growth is largely driven by the industry and services sectors.[1] Growth in agriculture has been very weak since the early 2000s but remains the largest employer. The informal sector[2] employs 95 percent of working Ugandans and contributes more than 50 percent of GDP. In 2016-2017 for the working-age population (14-64 years), about 310,000 new jobs were created, but more than 1 million people were seeking work. Youth unemployment rates were 15.4 percent and 13.6 percent for those who had completed secondary and post-secondary education, respectively, compared with the national unemployment rate of 11.6 percent for the same age group (UBOS, 2017).

Thus, Uganda's labor market is overwhelmingly informal, with pervasive underemployment and stagnant productivity. In 2012-2013, labor productivity (as GDP per worker) in agriculture was only US$581 (NPA, 2015-NDP II). Formal sector job creation has not kept pace with the increase in graduates, a rise fueled by rapidly improved access to education. Moreover, where formal jobs are available, the necessary skills and training are not, due either to poor access and quality of education or to more students doing arts and humanities while many employers want a science, technology, engineering and mathematics (STEM) background. Although the pace of technological change is very slow in Uganda, 4IR is already disrupting manufacturing technology, with significant implications for the nature and growth of jobs.

Although the national unemployment rate fell from 11 percent in 2012-2013 to 9.2 percent in 2016-2017, unemployment in 2016-2017 was far higher among females (13.2 percent) than among males at 5.6 percent (UBOS, 2017). Similarly, female youth unemployment was far higher (16.5 percent) than

1 Industry grew by 10.8 percent in FY 2018-2019 compared to 8 percent in 2017-2018. Services fell to 4.9 percent after 7 percent growth in 2017-18 (UBOS, 2019).

2 "Informal economy" refers to all economic activities that are by practice or by law not covered sufficiently or at all by formal regulations (ILO).

that of male youth (6.5 percent). Youth underemployment was 20 percent for females and 18.5 percent among males, with at least 16 percent of employed youth also considered poor (UBOS, 2017).

Uganda's population in 2020 is projected to be 41 million, increasing by 24.4 percent by 2030. People of working age form more than half of the population, of which 30 percent are youth (Table 1). These dynamics challenge policymakers to avoid worsening poverty and income inequalities.

Table 1. Population dynamics

	Working age (15-64 years) (percent of total population)	**Youth (15-35 years)** (percent of working-age population)	**Total population (millions)**
2015	52.3	29.1	35.5
2020	54.4	30.7	41.2
2025 (projection)	56	31.7	47.7
2030 (projection)	57.4	31.9	54.5

Source: Uganda Bureau of Statistics, 2019

2.2. Overview of education and skills development

Education structure and learning pathways

Uganda's education system provides for four levels of education (Table 2).

- Non-compulsory pre-school for 3-5 year-olds, mainly provided by the private sector
- Seven years of primary education for children 6-12 years old
- Four years of lower secondary for 13-16 year-olds (leading to the Uganda Certificate of Education), followed by two years of advanced secondary education for 17-18 year-olds (leading to the Ugandan Advanced Certificate of Education)
- Tertiary and university education

In addition to these core components, two other education and training modalities have evolved: Business, Technical and Vocational Training; and informal and non-formal training systems.

Business, Technical and Vocational Education and Training (BTVET). While formal BTVET is delivered by public and private training institutions, non-formal BTVET is delivered by private training providers, private companies and rural informal providers. The Ministry of Education and Sports (MoES) is responsible for BTVET program implementation and monitoring, including procedures for planning, budgeting and annual reviews.

BTVET constitutes the second and third levels of the education system. Second-level BTVET involves technical and farm schools that admit Primary 7 graduates, while third-level BTVET institutions admit O-level as well as A-level graduates. BTVET ranges from business, health, and agriculture, technical and vocational to para-professional fields, and has an overlapping three-tier system: (i) craftsman-level training offered by technical schools and institutes; (ii) technician-level training offered by technical colleges; and (iii) graduate engineer-level training offered by universities.

The BTVET sub-sector is expanding but is still only about three percent of secondary enrollment. This is because BTVET is not the first choice—both parents and learners have a negative attitude towards BTVET and most join either due to low grades or lack of funds for secondary and tertiary fees. Also, despite good infrastructure, some public BTVETs are underutilized compared to their private counterparts due to high entry requirements.

Informal and non-formal training systems. Non-formal education (NFE) offers a modular program of 3-6 months, open to all to acquire vocational and technical skills based on competency-based education and training. The NFE program includes a basic literacy campaign, continuing education, community learning centers, equivalency programs and primary education. The Ministry of Gender, Labor and Social Development (MoGLSD) program of functional adult literacy complements NFE interventions and recognizes prior learning.

Table 2. Structure of the formal (private and public) education system

Education level	Cycle/years	Awards	Progression Opportunities
Pre-primary	3		Primary education
Primary	7	Primary Leaving Examination	1. Lower secondary (O-Level) 2. Technical schools 3. Community polytechnics
Lower secondary (O-Level)	4	Uganda Certificate of Education	1. Upper secondary (A-Level) 2. Primary Teachers' College 3. Technical/vocational institutions 4. Farm institutions 5. Health institutions 6. Other training institutions
Technical institutes	3	Certificate	1. Technical colleges 2. Universities
Upper secondary (A-Level)	2	Uganda Advanced Certificate of Education	1. University 2. Uganda College of Commerce 3. National Teachers' College 4. Uganda Technical College 5. Other training institutions
Primary Teachers' College	2	Certificate	National Teachers' College
Uganda College of Commerce	2 to 3	Diploma	University
National Teachers' College	2	Diploma	University
Uganda Technical College	2	Diploma	University
University	3 to 5	Diploma/ Degree	Post-graduate studies

Source: MoES, 2014

Policies and legal frameworks

The provision of quality basic education is embedded in the constitution of 1995 and spelled out in Article 30 on the Right to Education. Other key legislation includes the Gender in Education Policy (2010) and the Business, Technical and Vocational Education and Training (BTVET) Act (2008), with major policies elaborated in documents such as the Government White Paper on Education (1992) and the Education Sector Strategic Plan (ESSP) 2017-2020 (MoES, 2017). The Gender in Education Policy (2010) guides all planning, resource allocation and implementation to address gender disparities at all levels by promoting equitable provision of knowledge and skills for harmonious national development.

Implementation of the Government White Paper on Education has been successful in ensuring equality in access, regardless of gender and disability, by introducing Universal Primary Education, Universal Secondary Education and the BTVET Strategic Plan, 2011–2020 (Skilling Uganda). The Gender in Education Policy has a 40 percent enrollment requirement for females in TVET and 1.5 affirmative points for girls entering government universities from secondary school. In addition, most schools have put up ramps for persons in wheelchairs and provide students with disabilities special treatment, such as getting extra time during examinations. However, Uganda's success on access-related targets has negatively affected quality of education (ESSAPR, 2016-2017), with an enormous increase in enrollment also having a severe impact on infrastructure as poor, uneducated parents from remote areas took up the opportunity to send their children to school irrespective of gender (Akampulira, 2016).

Strategic plans

Uganda's ESSP 2017-2020 is hinged on the National Resistance Movement Manifesto (2016-2021), National Development Plan (NDP-II), Government White Paper on Education and global commitments enshrined in the Education 2030 Agenda. The three strategic objectives of the ESSP are to:

- Achieve equitable access to relevant and quality education and training
- Ensure delivery of relevant and quality education and training
- Enhance efficiency and effectiveness of education and sports service delivery at all levels

While a key strength of the strategy is to have a liberalized education and sports sector, a major weakness has been the underutilization of ICT in service delivery. The new lower secondary curriculum and assessment systems rolled out in January 2020 are expected to help boost the production of a skilled workforce that meets the current labor and skills demand. However, implementation of the Skilling Uganda policy has been weak in terms of finance, human resources and outdated equipment in BTVET institutions. The Uganda Industrial Research Institute fills a gap as an incubation hub but cannot accommodate all would-be innovators and it is centralized.

Uganda has policies to empower females for the knowledge society. STEM policies such as the National Science, Technology and Innovation Policy (2009); the National Science, Technology and Innovation Plan (2012–2018); and the National Strategy for Girls Education (2014–2019) have tried to address infrastructure and science teacher shortages. However, girls' enrollment in STEM is often left unaddressed, with little or no emphasis on gender-responsive pedagogy.

Education financing and performance indicators

The primary sub-sector received the highest share (41.8 percent) of the total sector allocation, followed by the secondary sub-sector (20.6 percent), tertiary (20.3 percent), then BTVET (12.1 percent) and others[3] (5.3 percent) in 2018-2019 (Table 3).

Table 3. Sub-sector shares of total education sector budget 2018-2019 (UGX bn)

	Government Recurrent		Government Development		Donor Development		Total Allocation	Overall % share
Sub-sector	**Expenditure**	**% share**	**Expenditure**	**% share**	**Expenditure**	**% share**		
Primary	1,068.69	48.48	45.19	18.83	47.26	14.03	1,161.14	41.8
Secondary	459.01	20.82	97.92	40.81	14.03	4.17	570.96	20.5
BTVET	111.04	5.04	23.83	9.93	200.51	59.52	335.38	12.1
Tertiary	441	20.01	49.42	20.6	75.09	22.29	565.51	20.3
Others	124.57	5.65	23.57	9.82	0	0	148.14	5.3
Total	**2,204.3**	**100**	**239.93**	**100**	**336.89**	**100**	**2,781.12**	**100**

Source: EPRC compilation from MoFPED sector allocations, 2020

A comparison of sub-sector shares in 2018-2019 and 2017-2018 (Table 4) indicates that all sub-sectors had an increase except for the primary sub-sector, which declined by (5.4 percent). The secondary sub-sector had the highest increase of 2.8 percent followed by "others" with an increase of 0.99 percent. BTVET and tertiary allocations increased by 0.9 percent and 0.7 percent, respectively.

3 Physical Education and Sports, Special Needs Education, Guidance and Counselling and Policy, Planning and Support Services.

Table 4. Comparison of education sub-sector allocations, 2017-2018 and 2018-2019 (UGX bn)

	2017-2018		2018-2019		
Sub-sector	**Allocation**	**% share**	**Allocation**	**% share**	**Change in % share**
Primary	1,178.06	47.1	1,161.14	41.75	(5.35)
Secondary	443.54	17.73	570.96	20.53	2.8
BTVET	279.49	11.17	335.37	12.06	0.88
Tertiary	491.55	19.65	565.52	20.33	0.68
Others	108.49	4.34	148.13	5.33	0.99
Total	**2,501.12**	**100**	**2,781.13**	**100**	**0**

Source: EPRC compilation from MoFPED sector allocations, 2020

Education spending declined from 18.6 percent of total government expenditure in 2005-2006 to 11.1 percent in 2018-2019, far below the 20 percent target proposed by the Global Partnership for Education (GPE) and about half the 15-20 percent of the budget and 4-6 percent of GDP recommended for achieving the fourth Sustainable Development Goal (SDG4).

Primary enrollment increased from 8.37 million in 2010 to 8.65 million in 2016, with girls accounting for 50.3 percent. Out of all these, 61.5 percent completed primary level; more girls (63.4 percent) completed than boys (59.7 percent). Literacy levels have risen from 57.6 percent in 2010 to 60.2 percent in 2015. Secondary enrollment increased from 1.2 million in 2010 to 1.46 million in 2016, however more boys completed than girls. Overall, of the 61.5 percent who completed primary, only 69.2 percent progressed to secondary, and of the 69.2 percent joining lower secondary, only 37.8 percent completed this level. Of these, only 29.2 percent entered upper secondary; 24.2 percent were girls. Tertiary enrollment rose from 174,375 in 2010 to 258,866 in 2016, more male (104,432) than female (81,980).

Males have consistently outnumbered females in BTVET enrollment, in some instances by more than double. Total BTVET enrollment in 2017 was 45,153 with males outnumbering females 29,102 to 16,051, respectively. Females were most present in courses such as tailoring, hairdressing and arts. This study revealed a negative perception of BTVET as a less desirable option than education at the university, a view supported by the low investment in the sub-sector and lack of equipment. According to some interview subjects, technical education "is suited for failures"—e.g., those who did not earn enough in-take pass points into secondary or university. It was also stated that there is a "community bias towards female learners taking on BTVET courses, as many people still believe that technical education is for male learners. Parents too have a mindset that favors white-collar jobs."

The primary net enrollment rate (NER) was 78.9 percent and the gross enrollment rate (GER) was 115.2 percent. For secondary schools, the NER and GER stood at 20.4 percent and 27 percent respectively. More students completed tertiary education with a degree in liberal arts (337,652) than with a degree or certificate in STEM subjects (200,004) in 2012-2013.

Although there is gender parity in primary enrollment, completion rates for girls remain low and worsen at higher levels. Further, gender disparities persist, especially at higher levels, despite strategies such as giving young women an additional 1.5 points on top of their Advanced Level examination results (Namatende-Sakwa, 2014). Since the early 1990s when the initiative began, more females enrolled in university but not necessarily in STEM courses. The 2016 Gender in Education Policy notes near parity in enrollment in computing, economics, arts, management, and social sciences but a continuing strong male bias in agriculture (81 percent), forestry (72 percent), science (69 percent), veterinary medicine (82 percent) and education (75 percent). Women are socialized away from STEM disciplines due to perceived gender roles and division of labor (Watera, 2018).

Primary curriculum

The primary curriculum has undergone several reforms since 1965 resulting in minimal changes in scope, sequencing, relevance and language (Ezati, 2016) and with little distinction between, for instance, the 1967 curriculum that had 12 subject areas and the current curriculum (2007-2010) that merged and repackaged subjects into nine areas (NPA, 2018). Acting on the 2005 evaluation report, the MoES through the National Curriculum Development Centre (NCDC) embarked on the fifth post-independence Primary Schools curriculum review and revision (NPA, 2018), starting with Primary 1, adding one class yearly up to Primary 7. The review was handled in three main cycles: the Thematic Curriculum (P1-P3), which was rolled out in 2007-2009; the Transition Curriculum (P4 class), which was rolled out in 2010 and; the Upper Primary Curriculum (P5-P7), which was rolled out between 2010 and 2012. The first cohort of the revised curriculum sat for their Primary Leaving Examinations in 2012. However, the absence of a language board in every district or municipality affects implementation of the thematic curriculum. Teachers regularly use chalk and blackboards; electronic teaching tools are rare.

Lower and upper secondary curriculum

The 2008 Uganda Secondary Education and Training Curriculum, Assessment and Examination report detailed how secondary education has been the least reformed area of learning in Uganda. Among the key problems cited as requiring review were (i) teaching methodologies that do not promote effective learning and acquisition of skills, and (ii) an overloaded curriculum unable to meet national social and economic needs and insufficiently flexible to address emerging fields of knowledge.

According to the Curriculum Review Report (2016), Uganda's secondary education sector has been accused of being too theoretical and using teaching methodologies that do not allow active learning and produce skills that can be applied to solving contemporary problems. Some critics have argued that the system is too colonial and out of touch with national development aspirations. The National Development Plan and the Education Sector strategic investment plan both recognize the urgent need to reform the secondary education sector.

As a result, MoES rolled out in 2020 a new lower secondary curriculum to respond to the changing education and labor markets. The new curriculum has eight learning areas: creative arts, languages, life education, mathematics, religious education, science, social studies and technology and enterprise. It also promotes soft skills and desired social values (UNESCO, 2014). ICT is both an instructional tool and a subject. Teachers who were trained for the new curriculum are expected to transfer the skills to those who could not be accommodated. However, the training timeframe was considered too short and hurried and many of those who attended training did not feel confident enough to teach (Kii, 2021).

During the two years of upper secondary, students take three principal subjects with two subsidiary subjects. Principal subjects include biology, chemistry, mathematics, economics, geography, history, fine art, music, Swahili, English literature, Christian or Islamic religious education, agriculture, local language, a foreign language (Arabic, French, German and Latin), metalwork, woodwork, clothing and textiles, food and nutrition, entrepreneurship, and technical drawing. Subsidiary subjects are mathematics, ICT and general paper, which are mandatory. The upper secondary curriculum is due to be revised by 2025.

BTVET curriculum

Since 2003, Uganda's BTVET policy has aimed to produce an integrated, competency-based BTVET system involving employers and with equitable access, relevant and high-quality training, financial sustainability and institutional efficiency. It supports an appropriately diversified yet integrated system of BTVET delivery through formal, non-formal and enterprise-based training. This links with the revised lower secondary curriculum in which the Directorate of Industrial Training (DIT) helps assess student competence alongside the school curriculum. For example, on completion of a non-formal training program where admission does not depend on prior schooling, an individual can get competence certification from DIT (Okumu and Bbaale, 2018).

Education management

In the public sector, since civil service decentralization in 1998, local governments handle primary and secondary education. MoES is responsible for policy formulation and implementation and maintenance of standards through teacher training, curriculum development and examinations. The Cabinet Minister of Education and three state ministers are responsible for primary education, higher education and sports. MoES has four directorates for (i) higher technical vocational education and training; (ii) basic and secondary education; (iii) education standards; and (iv) individual training. Thirteen technical departments headed by commissioners are under these directorates.

Several semi-autonomous institutions support the MoES, including the National Curriculum Development Centre and the Uganda Business Technical Examinations Board. The Ministry of Science, Technology, and Innovation ensures the integration of science and technology in national development and the Uganda National Council of Science and Technology provides the policy and regulatory framework for the sector.

The numerous non-governmental stakeholders in the sector include the Parents and Teachers Association, Forum for African Women Educationalists, Uganda National Teachers Union, Coalition of Uganda Private School Teachers Association, and Federation of Non-State Education Institutions, among others. Several United Nations agencies have worked on resource mobilization, infrastructure development, policy support, reform and implementation. Challenges include duplication of programs and conflicting priorities with the government.

There are persistent capacity gaps in the education system, specifically the ability to monitor delivery systems for quality outcomes. Despite well-articulated policies and plans, effective delivery is limited, most notably with the slow integration of digital technology for a 4IR-ready workforce.

2.3. Labor market trends

The working age population increased from 15.4 million in 2012-2013 to 18.1 million in 2016-2017. Of these, 9.8 million are youth, with only 5.9 million are in the labor force (3.1 million males, 2.8 million females). While total unemployment in the same time period fell from 10.2 percent to 9.1 percent, youth unemployment rose from 10.8 percent to 11.3 percent, with female youth unemployment rates almost triple those of male youth. Table 5 also shows a significant reduction in youth vulnerable employment from 61.1 percent to 35.6 percent.

Table 5. Labor market indicators and trends

	2000-2013			2016-2017		
	Male	Female	Total	Male	Female	Total
Youth working age population (million)	3.6	4.4	**8.0**	4.4	5.4	**9.8**
Total working age population (million)	7.3	8.1	**15.4**	8.5	9.6	**18.1**
Youth labor force participation (million)	2.7	2.6	**5.3**	3.1	2.8	**5.9**
Total labor force participation (million)	4.9	4.5	**9.4**	5.3	4.6	**9.9**
Youth labor force participation rate (%)	73.4	59.7	**65.9**	69.7	52.3	**60.1**
Total labor force participation rate (%)	67.2	56.1	**61.4**	62.3	47.4	**54.3**
Youth unemployment rate (%)	6.5	15.2	**10.8**	6.5	16.5	**11.3**
Total unemployment rate (%)	7.3	13.2	**10.2**	5.6	13.2	**9.1**
Youth employment (millions)	2.5	2.2	**4.7**	2.9	2.4	**5.2**
Total employment (millions)	4.5	3.9	**8.5**	5.0	4.0	**9.0**
Youth employment to population ratio (%)	68.6	50.6	**58.8**	65.1	43.7	**53.3**
Total employment to population ratio (%)	62.2	48.7	**55.1**	58.8	41.2	**49.4**
Youth in vulnerable employment (%)	54.5	69.2	**61.1**	34.5	36.7	**35.6**
Total in vulnerable employment (%)	56.9	72.4	**63.9**	36.9	27.5	**37.2**

Source: EPRC calculations based on UNHS surveys

The number of youths in non-agricultural informal work rose from 3.9 million in 2012-2013 to 4.1 million in 2016-2017 across all age groups, though female employment slightly declined (Table 6).

Table 6. Informal employment, by age and sex (non-agricultural activities)

	2000-2013			2016-2017		
Age	**Male**	**Female**	**Total**	**Male**	**Female**	**Total**
15-18	222,071	178,248	**400,319**	251,821	151,429	**403,250**
19-24	498,008	543,911	**1,041,919**	630,704	578,466	**1,209,170**
25-29	526,768	562,139	**1,088,907**	704,734	504,321	**1,209,055**
30-35	707,509	676,337	**1,383,846**	734,859	567,557	**1,302,416**
Total	1,954,357	1,960,635	**3,914,992**	2,322,118	1,801,773	**4,123,891**

Source: EPRC calculations based on UNHS surveys

Most youth in informal employment have not completed secondary school. Those with some primary education were 84.1 percent, while 81.6 percent had completed primary and 81.3 percent had some secondary education (Table 7).

Table 7. Informal employment by educational attainment (mean averages; %)

Age	No formal education	Some primary	Completed primary	Some secondary	Completed secondary	Post-secondary	Not stated	Total
Panel A: 2012-2013								
15-18	41.0	63.2	66.1	54.7	85.0	61.6	0.0	**61.6**
19-24	80.1	91.0	87.4	83.2	85.2	82.7	94.8	**86.9**
25-29	89.7	95.4	91.4	95.0	85.7	89.6	79.9	**92.1**
30-35	94.1	93.0	97.2	95.3	92.1	83.6	93.6	**92.1**
Total	**85.7**	**86.8**	**88.2**	**85.5**	**87.1**	**85.1**	**85.4**	**86.4**
Panel B: 2016/17								
15-18	75.2	89.5	81.7	89.3	85.9	98.4		**87.9**
19-24	72.7	82.3	78.6	77.2	75.6	72.3		**78.7**
25-29	79.9	80.3	81.8	76.4	80.1	81.7		**79.9**
30-35	81.7	82.9	84.5	86.1	81.5	82.1		**83.4**
Total	**78.4**	**84.1**	**81.6**	**81.3**	**79.0**	**79.6**		**82.0**

Source: EPRC calculations based on UNHS surveys

The proportion of youth not in employment, education or training (NEET) plunged from 32.4 percent in 2012-2013 to 13.9 percent in 2016-2017 (Table 8). This drop is attributed to projects such as Skilling Uganda, Youth Livelihood Programme and Uganda Women Entrepreneurship Programme. However, the proportion of NEET females (18.7 percent) is more than double that of males (8.3 percent).

Table 8. Youth not in education, employment, or training (mean averages; %)

	2000-2013			2016-2017		
Age	**Male**	**Female**	**Total**	**Male**	**Female**	**Total**
15-18	12.5	23.8	**17.7**	8.3	13.0	**10.5**
19-24	23.8	50.9	**39.4**	11.7	23.6	**18.4**
25-29	23.9	50.9	**38.4**	7.5	21.5	**15.2**
30-35	24.1	46.1	**35.9**	5.0	14.8	**10.3**
Total	20.3	43.3	**32.4**	8.3	18.7	**13.9**

Source: EPRC calculations based on UNHS surveys

Part 3. Supply-side perspectives

This section analyzes the supply-side perspectives of Uganda's education sector using primary data at a sample level that is not representative of the entire education system.

3.1. Access to secondary education and skills training

Curriculum

The National Curriculum Development Centre (NCDC) guides all aspects of learning and teaching, both formal and informal, that take place in schools in relation to set objectives, outcomes, and assessment standards. The NCDC National Curriculum Statement is used by teachers and comprises subject statements, each containing: definition, purpose, scope, learning outcomes, subject competence per grade, content, assessment standards, and contexts for attaining the standards. The curriculum development process organizes who will be taught, what will be taught and how it will be taught. Each component interacts with the other components to link methods and content to intended outcomes.

Through the NCDC, MoES is directly responsible for curriculum development while the Ministry of Gender, Labour and Social Development (MoGLSD) develops and implements policies for job creation and decent work, including apprenticeship. This structure shows that at the highest level of decision-making, employment creators and skills development institutions do not collaborate in developing a curriculum that responds to market needs. Several other stakeholders are involved in curriculum development including MoES agencies, Uganda National Examinations Board, Uganda Business Technical Examinations Board, public school teacher representatives, parents, communities and beneficiaries. Key informants across the secondary and vocational sectors said the curriculum is meant to be updated based on key government reforms. For BTVET institutions, about 33 percent of respondents said updating occurs every five years depending on market needs. The MoES Directorate of Education Standards monitors curriculum implementation for secondary schools while guest teachers and assessors or examiners monitor BTVET. However, one MoES official said the "training of trainers" curriculum was last reformed in 1993 (Commissioner, TIET, 2020).

Teacher training

According to the 2013 Teachers' Initiative in Sub-Saharan Africa (TISSA) report, two government departments—the Teacher Instructor Education and Training (TIET) department of MoES and Kyambogo University—are responsible for the training of teachers, instructors and lecturers ranging from primary schools to specialized institutions including commerce, health, technical and agricultural colleges. Uganda has at least one teacher training college in each of the four geographical regions, but it is mainly for primary teachers. The Instructor/Tutor Education division

of TIET is responsible for the training of teachers for BTVET institutions. Pre-service and in-service training is available, with Kyambogo University playing a central role, handling technical program entry requirements, admissions, registration, content and certification processes. The division also provides BTVET teacher training along with Abilonino Instructors' College, Nakawa Vocational Training Institute, Jinja Vocational Training Institute and the private Kampala Institute of Technical Teacher Education.

Universities train some graduates for upper secondary school teacher posts. Primary and secondary teachers who wish to upgrade can also enroll at university in a specific study area, such as measurement and evaluation, guidance and counselling, or curriculum and learning. Following the liberalization of the university sector, more public and private universities offer teaching-related degree courses. The preferred mode of upgrade consists of study leave with pay based on the relevance of the specialization chosen by the teacher (Teacher Report, 2007; National Teacher's Policy, 2019). Continuous professional development programs train teachers in areas identified in consultation with head teachers. Interviewees noted that ICT-related activities lack a special training program. Teachers who teach ICT took such courses during their training programs (diploma or degree) or attended private courses.

A field survey on training of trainers and the perceptions of ICT/STEM/TVET delivery systems showed mixed evidence with regard to policy, access, infrastructure, skilling and inclusiveness. Trainers were neutral on clarity and relevance of policies and their depth to allow teachers to acquire relevant knowledge and skills for effective instruction; competence in literacy, numeracy and soft skills; meeting learning and physical infrastructure needs of females and disabled instructors; effective career counselling system for teachers; and a deliberate strategy to encourage female teachers to take on ICT/STEM/BTVET subjects. There was a disagreement on the issue of institutions having access to relevant and adequate BTVET equipment and teaching materials. Trainers were neutral on the issue of mismatch between the planned and delivered curriculum for ICT and TVET. They agreed that assessment was inclusive and paid attention to practical delivery of STEM and BTVET; they were neutral on ICT. They also said there was no comprehensive stakeholder engagement around the STEM curriculum.

Career guidance

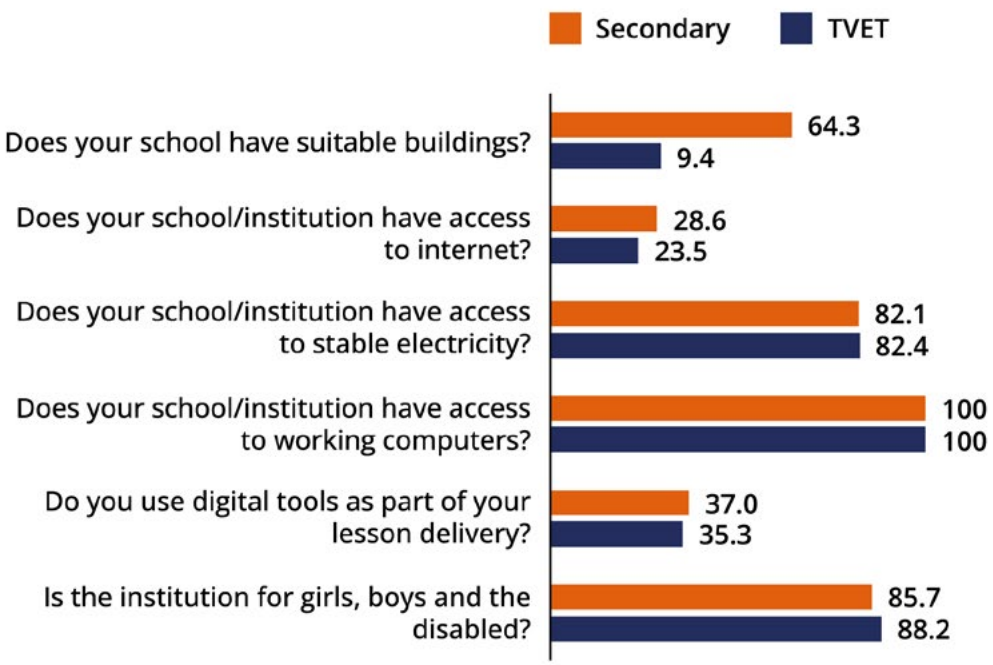
MoES policy on career guidance and counselling dates back to 1968 (MOES, 2004). The Department of Guidance and Counselling became autonomous in 2008 and spearheads career guidance programs in schools (MOES, 2010). MoES requires all secondary schools to ensure time throughout the year for career guidance with a full-time school counsellor. While the government has made some investment in career guidance and counselling at all levels, and stakeholders said career guidance is embedded in the training systems, access to counsellors is less than 50 percent for BTVET schools and more than 50 percent for secondary schools. Most secondary schools make use of senior female and male teachers, board members and visiting counsellors not on the full-time payroll, and parents. These stakeholders plus industrial practitioners are often invited to provide career guidance at various points: during orientation week, in school clubs and at end of year parties. In affluent public or private secondary schools and formal BTVET institutions, there is often a career guidance day. The survey reveals that many challenges have greatly crippled career guidance and counselling in schools, such as a lack of trained counsellors, inadequate training manuals, a lack of career information and standardized assessment tools and high student-counsellor ratios. Otwine (2018) noted that the situation is exacerbated by overconcentration on curricular activities and poor funding.

Physical and digital infrastructure

MOES is developing a digital agenda to mitigate e-learning challenges. Although one respondent said that less than 50 percent of training institutions have access to computers, secondary and BTVET administrators said they all had access to working computers since the government had ensured an ICT laboratory and server room is set up in each secondary and formal TVET school. However, use of digital tools in lesson delivery remains below 40 percent, with internet access below 30 percent (Figure 2). More than 80 percent of institutions had good access to electricity but rampant power shortages resulted in frequent use of generators. Even when the schools (especially BTVET) had inadequate buildings, respondents said they were suitable for all, irrespective of gender or disability.

The computer-student ratio varies across schools, however, many respondents indicated that it is greater than 5:1 at secondary and greater than 75:1 at TVET institutions. The Korean government has provided computers to some TVET schools to narrow the computer-student ratio.

Figure 2. Availability of critical infrastructure (%)



Source: Field survey respondents, February-March, 2020

COVID-19 effects on education access and role of digital infrastructure

One major impact of COVID-19 on education was the indefinite closure of all learning institutions on March 20, 2020, despite overwhelming evidence that the longer children are out of school, the greater the risks of violence, rape, child marriages, child labor, prostitution and other life-threatening activities. The measure left more than 73,000 learning institutions closed, and 15 million students and 600,000 refugee students out of school. In November 2020, the government reopened school for candidate classes (Primary 7 and secondary Form 4 and Form 6) and for all final year students of training and tertiary institutions, as well as medical and nursing schools.

A major impact of COVID-19 in Uganda was a revolution in the use of digital technologies in education. To facilitate continuity for all learners, especially in primary and secondary schools, MoES worked with NCDC to produce harmonized learning materials delivered on radio, television and print. However, with more than 80 percent of Uganda's school-age children and youth living in rural areas often lacking basic resources and infrastructure, low access to technologies is widening the education gap. The inequality in education access during the pandemic was illustrated by a university student interviewee who said:

> *"University has continued to teach the first year and second year continuing students using online methods. However, I have not attended a single class since this happened. My phone is not compliant with use of internet nor do I have the resource capacity to purchase the internet data required to attend class. I have missed out on exams and tests. I don't know what I will do."*

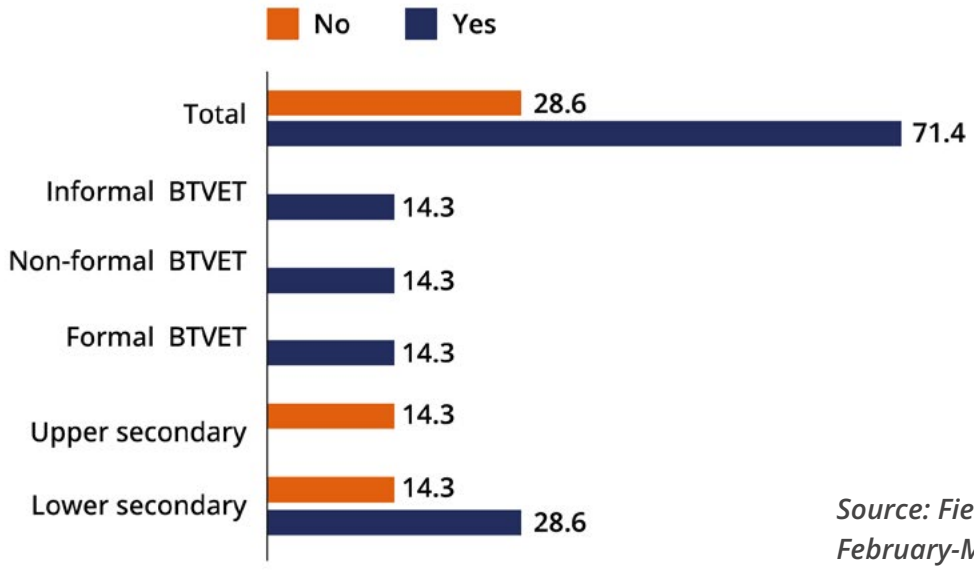
3.2. Quality and relevance of supply-side levers

Curriculum

Good quality secondary education is a prerequisite for the successful integration of young people into the modern economy and for the ability of a country to benefit from the ICT and knowledge revolution—and, in turn, for a country to compete successfully on a global scale (World Bank, 2002). The quality of education is determined by the quality of its curriculum, and the welfare of the curriculum depends on adequate funding for retooling teachers, providing resources and facilities and regular monitoring.

According to the BTVET Strategic Plan 2011-2020, the current BTVET curriculum does not produce the appropriately skilled workforce Uganda needs to compete in international markets. Indeed, less than 40 percent of large and medium firms regard BTVET courses as relevant and employers have too little influence in a rigid BTVET system that cannot adequately respond to market needs. However, in this study's field survey, 71 percent of stakeholders said the current BTVET curriculum is well aligned with current and future job market needs while at lower secondary level, improved alignment is now being observed but is yet to reach upper level (Figure 3).

Figure 3. Views on alignment of current curriculum to current and future job market (%)



Source: Field survey respondents, February-March, 2020

Respondents said the secondary-level curriculum is still exam oriented and creates job seekers who need further training before joining the job market, which is why the lower secondary curriculum was revised to enable students to acquire skills that will ensure employment. According to one respondent at MoGLSD, "... there is now a clear connection between the curriculum and work environment more especially for BTVETs and the new curriculum rolled out at lower secondary level."

Curriculum delivery

About 85 percent of secondary and BTVET schools said much of the curriculum was being taught and they were able to get through the syllabus within the prescribed time. According to one respondent:

> *"...Teachers' lesson schemes were prepared based on the curriculum. Where necessary, extra classes were created. Some schools cover the syllabi in advance to create more time for students to prepare for exams. For those unable, it was because the syllabus was over loaded... For institutions that are highly practical, such as BTVETs, it was easy to complete the syllabus because of good planning. Furthermore, while soft skills such as teamwork and problem-solving were being taught as part of the formal BTVET curriculum, this was not the same for secondary level until the reforms took place for lower secondary. Nonetheless, pockets of secondary schools, especially the affluent ones, teach soft skills. However, these are never examined."*

Contact hours per week dedicated to ICT literacy, STEM and non-STEM subjects differed at various levels. Secondary school administrators said most activities take 5-10 hours per week irrespective of secondary level and were mostly spent on literacy while STEM subjects tend to take 11-20 hours per week, and at upper-level non-STEM subjects take about 21-30 hours of contact per week (Table 9).

Table 9. Contact hours per week dedicated to subjects, by secondary level

	Hours			
Age	**5-10**	**11-20**	**21-30**	**Total**
Lower secondary				
ICT literacy	25.9	0.0	0.0	**25.9**
STEM	14.8	24.1	0.0	**38.9**
Non-STEM	14.8	18.5	1.9	**35.2**
Total	**55.6**	**42.6**	**1.9**	**100**
Upper secondary				
ICT literacy	31.6	0.0	0.0	**31.6**
STEM	14.0	8.8	12.3	**35.1**
Non-STEM	14.0	1.8	17.5	**33.3**
Total	**59.6**	**10.5**	**29.8**	**100**

Source: Field survey respondents, February-March, 2020

Regarding practice and theory, 34.6 percent of respondents said at least 5-10 hours were dedicated

to practical sessions per week for formal BTVET institutions while 42.9 percent said that the same time was dedicated to theory. This seems generally true at formal BTVET level while non-formal TVET schools spend more time on practical. Most respondents were unsure of the balance in informal TVET schools.

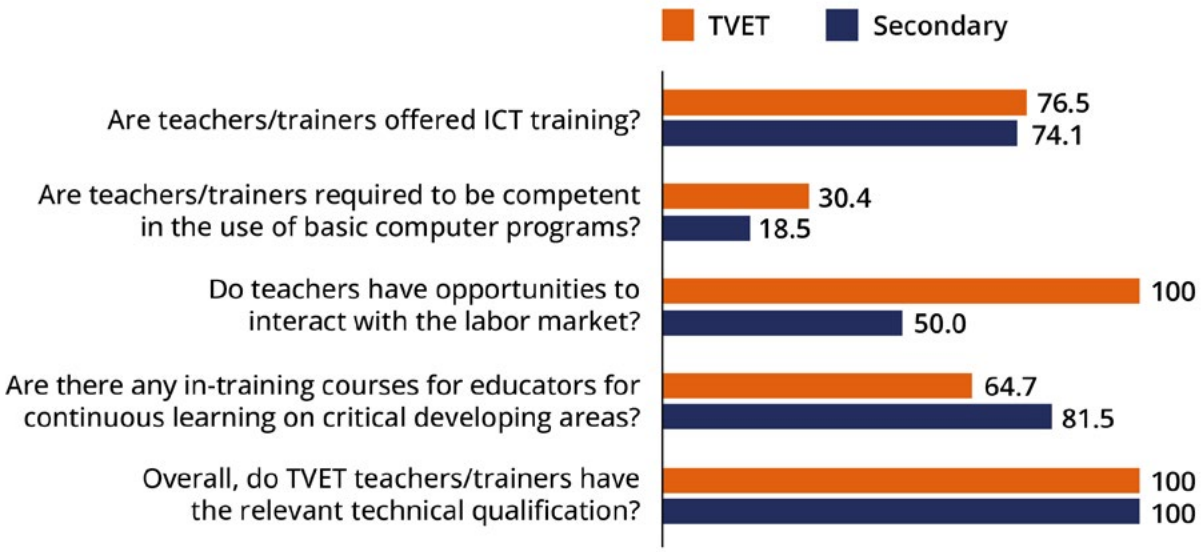
Use of digital tools in lesson delivery is not common except in affluent secondary schools. BTVET and secondary schools said they use 40-60 minutes per day, twice a week on building foundational and life skills. Some foundational skills are given through debates (to harness communication skills), school clubs, games, music, dance and drama, and leadership (as prefects).

Teacher training

According to the 2015 State of Education in Africa Report, no country can have a better quality of education than the quality of its teachers. The 2018 National PA Report said to enhance teacher quality, MoES had revised admission requirements for primary teacher training colleges. Besides an O-level certificate, entrants must have a credit in mathematics and English and a pass in any two science subjects at O-level. To improve science teaching, the Secondary Science and Mathematics Teachers program, initially created to support secondary school science teachers, was extended to support science and math lecturers in primary and national training colleges (MoES, 2014).

The Curriculum Review Report (2016) asserts that teacher education has failed to acknowledge that the quality chain in education begins and ends with educators. Issues of recruitment, incentives, and professional growth have in turn received little attention. MoES has made some progress by upgrading the status of the profession and improving the terms and conditions of service of teachers through training. However, continuous retooling, especially for BTVET trainers, needs to be stepped up as teacher quality is still inadequate and training institutions do not budget for capacity building (Figure 4.)

Figure 4. Teacher capabilities and quality (%)



Source: Field survey respondents, February-March, 2020

Almost 65 percent of respondents said TVET institutions had continuous training for educators and interaction with the labor market—a far greater number than found in secondary schools. However, it was also noted that competence requirements for trainers in the use of basic computer programs was much lower for TVET trainers than for secondary teachers. Competence is not assessed nor monitored for adherence, but trainers can be trained on the job if interested.

As seen in Table 10, about 80 percent and 54.5 percent of respondents said that upskilling trainers at secondary and TVET levels respectively was done at least once a year (during holidays). To confirm what was noted under access, respondents said current opportunities to upskill are through government-funded Secondary Science and Mathematics (SESEMAT)[4] workshops, scholarships from partner agencies like the Korean government, free training and sometimes paid leave. Refresher courses are also offered, especially when the curriculum changes, as are government upskilling programs for trainers such as STAR, or School Teacher Innovations for Results.

Table 10. Duration of upskilling teachers/trainers (%)

	At least once a year	Every 2-5 years	As curriculum is updated	Do not know	Total
Secondary					
Lower secondary	42	8	2	0	**52**
Upper secondary	38	8	2	0	**48**
Total	**80**	**16**	**4**	**0**	**100**
TVET					
Formal TVET	50	4.5	9.1	4.5	**68.1**
Non-formal TVET	4.5	9.1	4.5	4.5	**22.6**
Informal TVET	0	0	0	9.1	**9.1**
Total	**54.5**	**13.6**	**13.6**	**18.1**	**100**

Source: Field survey respondents, February-March, 2020

Career guidance

The lack of structures and capacity to implement career guidance programs in school affect its quality. One major challenge highlighted in the survey was socio-cultural norms and attitudes. Trainers indicated that socio-cultural values tend to provide better opportunities to males than to females, with stereotypes that assign certain occupations to males and females and encourage boys to feel superior and girls to by shy to express themselves and feel inferior and unable to do certain courses.

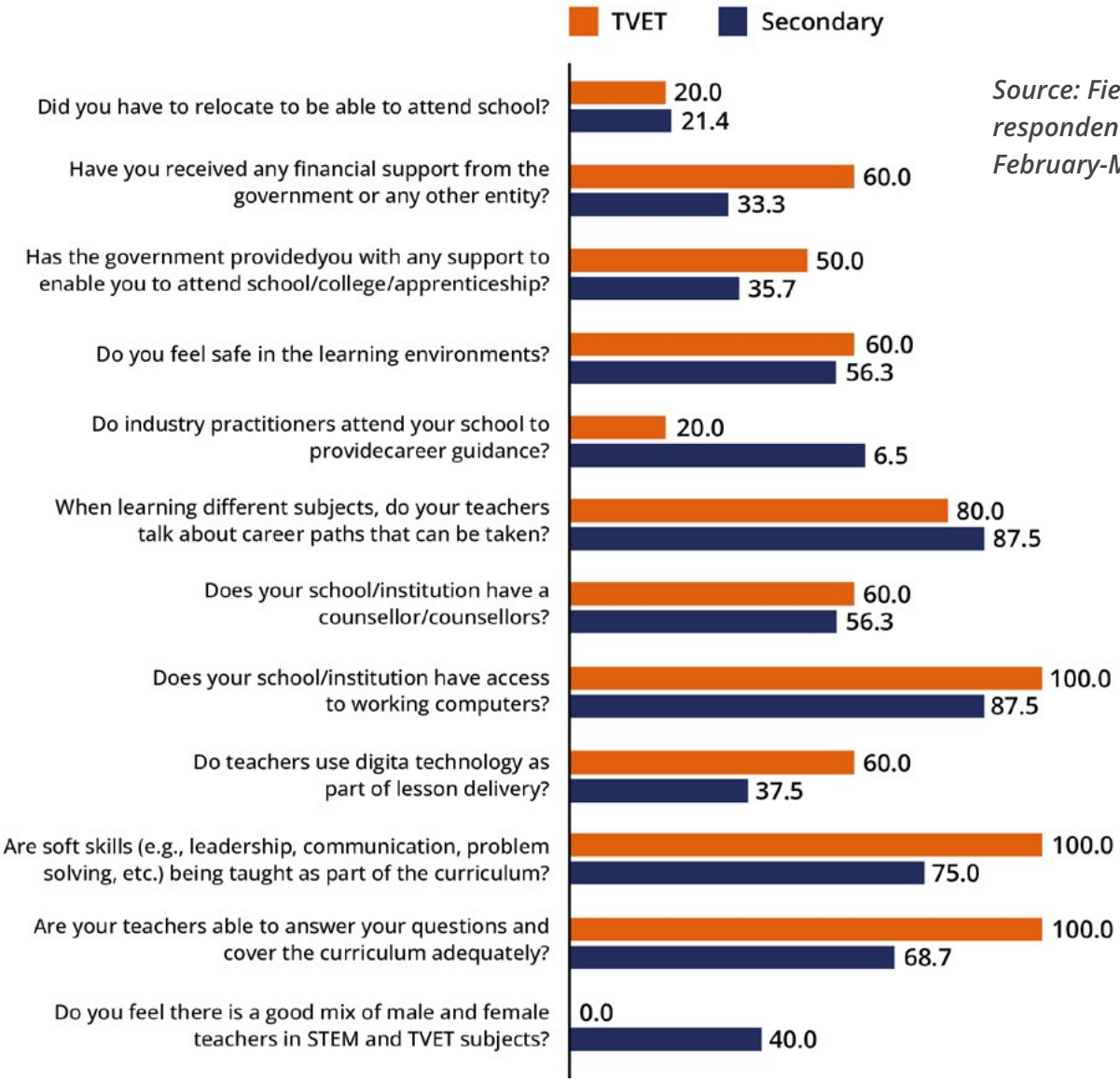
4 The SESEMAT program was introduced in 2005 to improve the ability of science and mathematics teachers at secondary level and to improve student performance in those subjects. SESEMAT is a joint venture between Uganda (through the Ministry of Education and Sports) and Japan through Japan International Cooperation Agency (JICA). It is offered through in-service teacher training.

Physical and digital infrastructure

About 20 percent of students said they had to relocate to attend school due to the long distance from their home to a good institution with good teachers (Figure 5). It was also noted that for TVET formal learning, most institutions were boarding. Teachers were providing support and bullying was not tolerated. With regard to safety, about 60 percent of learners felt safe at school as they were fenced off with security guards; the feeling of lack of safety mainly arose in schools with dirty toilets, no fencing and poor roofing. Other problems noted include lack of feminine hygiene materials for females; poor water supply, especially for rural schools; congestion in classes and dormitories; mismanagement of school funds, which leads to teachers' strikes, and inadequate learning materials and tools.

Use of digital tools in lesson delivery was not common except in affluent secondary schools. Students said they spent one or two hours per week learning ICT skills. Use of digital technologies in lesson delivery was less than 40 percent in secondary, mainly involving ICT students. Recognition was given to teachers who sometimes use their phones and projectors for demonstrations in teaching. Nonetheless, all these efforts are rare and are subject specific (primarily in geography, ICT, physics, and chemistry).

Figure 5. Secondary and TVET students' perceptions of school environment



Source: Field survey respondents, February-March 2020

Life-long learning

Respondents said they had undergone or were undergoing training in different fields such as computer lessons, professionalism, tailoring, customer relations and marketing. Further opportunities to upskill are provided by the aforementioned SESEMAT workshops. Nonetheless, there are major challenges that limit upskilling, such as financial constraints that have even led some trainees to drop out. Others mentioned corruption (unofficial fees to overcome bureaucratic delays in registration) and family commitments (such as paying fees for siblings, looking after parents, and working in a family business).

Trainers report limited skilling, especially in new technologies that are coming on board. Teachers lack ICT skills and the equipment to upgrade their skills, yet the new curriculum emphasizes ICT. In addition, there is minimal interaction between teachers and industry so the right skill sets are not developed.

Part 4. Demand-side opportunities and constraints

4.1. Curriculum development and career guidance

Private sector involvement in curriculum development occurs more in BTVET but has increased at the secondary level since reforms that took effect in 2020. According to one interview respondent:

> *"The reforms were intended to make the curriculum more practical, competence based and responsive to technological changes. As private sector stakeholders, we are now being involved in designing, evaluating, refining and implementing programs that enhance uptake for 4IR through workshops and seminars—more so at BTVET than secondary."*

Industrialists respond to invitations to provide career guidance to students, but this is not systematic and varies depending on the school administration.

4.2. Labor market needs

Uganda's labor market information system (LMIS) is based on the labor module in the National Household survey. The LMIS was designed with the view of meeting critical needs of the labor market and the system is under the internal and external employment department of the MoGLSD. The system supports the ministry in undertaking proper mentorship trainings and apprenticeships and conduct regular job matching for selected job seekers. According to one key MoGLSD respondent:

> *"The major industries that offer formal jobs in Uganda are: Agro-based (production and processing), banking, manufacturing, mining, services and telecommunication. Nonetheless, the same sectors employ informally young people and beyond these, informality is high in farming (agriculture), Media, public transport, technology development and trade sectors. There is no clear tracking employer and employment surveys in Uganda and as such most industries meet their labor demand needs through various avenues such as: The Kampala Capital city employment Bureau, out-sourcing mainly through private employment agencies, talent register, advertising, direct recruitment, head hunting and use of free government platforms such as the National Job Matching Platform located in the MoGLSD."*

Many young people join the informal sector because they cannot get white-collar jobs but most of them are creative, resilient and able to grow a business. The current job market requires basic computer knowledge and soft skills such as interpersonal and communication skills and many youths in the informal sector have some of these unique skills. While 65 percent of MoGLSD respondents thought that young people joining the labor market had the skills (if BTVET is factored in) demanded by industry, 92 percent of secondary school respondents felt otherwise. The interactions for identifying such skills for industry are mainly through partnerships with some training institutions, internship and attachment opportunities, industry sponsorship of students, and orientation week.

4.3. Work environment

The formal work environment in principle offers equal opportunities for young men and women to thrive. About 68 percent had a gender policy in their companies, informally expressed as "anyone who comes willing to learn is offered training, and if you are good, you get a job and the Human Resource manual protects women from sexual harassment." Gender stereotypes exist in some jobs as men tend to advance faster than women.

With regard to government support to help the sector adapt to technological advancements (such as through tax incentives), 37.5 percent of formal sector respondents said they received some form of government support, compared to only 9.1 percent of informal sector respondents—indicating that formality has some advantages. Only eight percent of informal businesses thought they would be doing the same business in the next 5-10 years, indicating the high casualty rate of informal businesses.

The lowest qualification for hiring in the formal sector is secondary education. According to the focus group discussions held with students for this study, university learners had internship programs but they were too short for a meaningful impact. Formal firms are obligated under the National Employment Policy of 2011 to provide internships for students for a period of one to three months. The government recognizes the youth unemployment problem resulting from lack of employable skills and responded with an apprenticeship program through MoGLSD and MoES that selects final-year students for attachments with a clear contract (including wage and insurance). However, firms are not willing to incur the wage costs and this program has failed to take off.

Livingstone and Kemigisha (1995) argue that informal apprenticeship in East and Central Africa is generally more limited than in West Africa. Further, they find that 40 percent of all persons engaged in trade (such as metalworking and woodworking), including family workers, are apprentices but highly informal. In addition, in Uganda, most apprentices do not pay for their training but receive a daily subsistence allowance in cash. Field respondents suggested that the absence of clear arrangements and content on apprenticeship has made this form of training less understood; indeed, there are almost no statistics on the extent of the activity, such that a substantial portion of apprentices in Uganda was in fact employed but disguised as cheap labor. Low availability of formal sector jobs keeps many respondents in the informal sector but some indicated that they were making more money informally than formally as they would earn more than US$2 per day.

Respondents indicated that the major barriers to businesses were infrastructural, such as unstable electricity supply and poor road networks, especially during rainy seasons when trucks get stuck in villages. Also mentioned: high rents and high taxes leading to high cost of doing business, recruitment based not on merit but on "knowing somebody" to get a job and corruption. Thus, some respondents argued that government incentives for youth job creation were benefiting only those with the right connections. However, many youths lack communication skills, customer care, networking abilities and patience. Others have a negative attitude and lack practical skills even though they are educated.

Part 5. Conclusions and policy recommendations

5.1. Emerging issues

Government policy interventions—such as Gender in Education, Universal Primary Education, Universal Secondary Education and Upskilling Uganda—have improved equality in access (in terms of gender and disability) to free and compulsory education, increased BTVET uptake and increased enrollment of girls in STEM subjects. However, while more girls enroll at lower levels, their enrollment and completion rates at higher levels are low and also remain low in BTVET and STEM disciplines.

Uganda has very good BTVET schools with good infrastructure. Although private BTVETs are operating at full capacity, government BTVETs with good facilities are empty, in part due to high government entry requirements compared to those of private institutions. BTVET courses are more practical and aligned with the current and future job market than the secondary curriculum, which is exam oriented, highly theoretical and prevents active learning and acquisition of new knowledge and skills.

Despite the improvements in access and the quality of BTVET curricula, most Ugandan youth joining the labor market still lack the technical, communication and ICT skills that are in high demand by the private sector and are necessary for a 4IR-ready workforce. COVID-19 heightened the need for Uganda's education and learning systems to embrace digital technology. Currently, less than 50 percent of training institutions have computers, though ICT is now a subject in secondary schools and teachers are being trained to integrate it into their lesson delivery.

Key challenges on the supply side include limited financing for upskilling, inadequate infrastructure and classroom congestion. Key challenges on the demand side include lack of ICT skills among graduates, the high cost of doing business and a lack of government support for conducting operations. In addition, industry practitioners are never consulted about the curriculum despite them being knowledgeable and experienced in the labor market.

5.2. Policy actions

Based on findings, this study makes the following recommendations:

- The government and policymakers should engage employers to provide information and guidance to ensure that curricula align with market needs and produce a 4IR-ready workforce.
- Institutions should focus on producing confident students with both practical and soft skills since the job market requires not only ICT but also interpersonal and problem-solving skills.

- The government should facilitate internet access for online courses, making it mandatory for teachers to upskill every two years.
- The government should support continuous learning for trainers through annual conferences, seminars, short courses and refresher training on career development and life-long learning.
- Workshops and career guidance sessions should be included in all schools, with qualified career counsellors employed to guide students on career choices.
- Vocational and ICT skills should be taught at all levels of education.
- Internship periods for BTVET, college and university students should increase as needed so that they are long enough to enable students to gain employable skills and work environment ethics.
- The number of teachers, especially for STEM subjects, should increase to create more time for beneficial learning and integration of more practical sessions, with the balance shifting to 70 percent practical and 30 percent theory for BTVET institutions in particular.
- BTVET should be centralized by the government instead of the current approach, which includes programs and projects scattered across various ministries, departments and agencies.
- The TVET Council should prioritize the dissemination and popularization of TVET policy to cure the negative attitude towards technical subjects among the public.

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