JOB-READY GRADUATES OF SECONDARY EDUCATION IN BOTSWANA, LESOTHO AND ZAMBIA

Reforming Instruction, Curriculum, Assessment, and Structure to Teach Vocational and 21st Century Skills

Andreas Blom, Xiaonan Cao, Harisoa Andriamihamina, and Iyioluwa Teleola Akinlawon

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WORLD BANK GROUP

1818 H St. NW
Washington, DC 20433
Telephone: (202) 473-1000
Web site: http://www.worldbank.org
E-mail: feedback@worldbank.org

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Acronyms

AP	Advanced Placement
BGCSE	Bahamas General Certificate of Secondary Education
BTEP	Botswana Technical Education Programme
GDP	Gross Domestic Product
ICT	Information and Communications Technology
LSA	Lesotho Skills Authority
MoBE	Ministry of Basic Education
MoET	Ministry of Education and Training
NJCTL	New Jersey Center for Teaching and Learning
NQF	National Qualifications Framework
OECD	Organisation for Economic Co-operation and Development
PBL	Project-Based Learning
PISA	Programme for International Student Assessment
PMI-PSI	Progressive Mathematics Initiative – Progressive Science Initiative
SBM	School Based Management
SSA	Sub-Saharan Africa
TVD	Department of Technical and Vocational Training
TVET	Technical and Vocational Education and Training
TVETA	Technical and Vocational Education Authority

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1 Introduction

In order for graduates to be job-ready, secondary education needs to inculcate 21st century skills and vocational skills demanded by employers. Three reforms are required to achieve these ends: (i) instructional techniques need to be more student-centric; (ii) the curriculum and assessment must emphasize 21st century skills development, such as learning to learn, team-work, communication, problem-solving, and the encouragement of commitment; and (iii) the introduction of multiple educational pathways—a combined vocational and academic senior secondary education track in Botswana and Lesotho—and the expansion of vocational pathways in Zambia. Further, this vocational track should prepare secondary school graduates for jobs in growing economic sectors, and incorporate on-the-job-training in the form of internships. In the absence of these reforms, youth unemployment is likely to become more acute. Botswanan, Lesotho, and Zambian youth are eager and talented, their teachers are committed to their work, and many of the operational inputs to support meaningful secondary education are in place. However, the outcomes of secondary education continue to be suboptimal.

This report seeks to assist the Governments of Botswana, Lesotho, and Zambia to more effectively develop job-ready secondary education graduates, who are better placed to increase their earnings and stay out of poverty. The report aims to provide specific and practical suggestions for teachers, schools, and ministries to improve the job-readiness of secondary education graduates, and, in turn, is intended to facilitate a sharing of national and international experiences in the three participating countries.

This report summarizes the main findings and recommendations for improving job-readiness in secondary education in Botswana, Lesotho, and Zambia. The report is premised on three background studies and analyses of employer and household surveys. It is structured in the following manner:

i. *This introduction provides the rationale for why the job-readiness of secondary graduates is worthy of attention.* While education remains a sound investment on the part of governments, problems arise when there is a slow and expensive transition from secondary education to the labor market. Across the three countries, 450,000 young secondary school graduates are currently unemployed or economically inactive. Employers articulate that a key challenge is that contemporary forms of secondary education do not sufficiently prepare graduates of secondary education with the necessary skills—cognitive, non-cognitive, and vocational—demanded in a 21st century economy.
ii. *The second section presents an analysis of education quality and type of instruction.* It presents findings from classroom observations in 18 schools in Botswana, Lesotho, and Zambia. The findings indicate that learners and teachers are well prepared and committed, and that conditions in the classroom are decent. However, the instruction delivered is teacher-centered, with little evidence of student collaboration and active learning. The general absence of group work and collaborative learning undermines the development of skills associated with teamwork. Similarly, there was little evidence of the use of problem- and project-based assignments. We recommend that governments consider working with teachers and school directors to initiate a national debate on teaching style, followed by an in-service teacher training program to improve instructional practice

and encourage more active, collaborative and exploratory learning on the part of students.

iii. *The third section of this report examines curricula and tools for assessment.* Our analysis suggests that contemporary curricula and forms of assessment focus on the acquisition of traditional foundational skills such as reading, writing, and math; while an emphasis on the development of thinking skills, problem-solving, teamwork, initiative/entrepreneurship, self-management, self-guided learning, and technology are secondary learning objectives, or are entirely missing. We find that all countries have made substantial progress in preparing a competency-based curriculum, in particular Botswana. However, graduates in all three countries are almost exclusively examined through a national assessment of standard examinable knowledge. This form of assessment incentivizes teachers and students to reduce classroom activities to rote-learning of standard examinable knowledge. We recommend that a school-based assessment of skills and competencies, including project and group-based assessment, should be developed and incorporated into formal assessment and count towards graduation. Instruction, curriculum, and assessment must all be aligned and focused on the development and acquisition of 21st century skills.

iv. *The fourth section reviews the structure of secondary education.* Botswana and Lesotho offer a one-size-fits-all model of secondary education with a strong focus on the development of academic skills and preparation for university education. Zambia offers two pathways in secondary education including the option of a vocational qualification. In light of the fact that only 25 to 50 percent of secondary graduates in the countries under consideration typically proceed to university education, the emphasis on academic skills in secondary education is poorly aligned with the needs of the majority of students and the economy. The majority of students require skills and work experience to more effectively access employment. Therefore, this report strongly supports the education strategies of the governments of Botswana, Lesotho, and Zambia to introduce or scale-up the combined vocational and academic pathway in secondary education. We recommend that this combined pathway continue to provide a rigorous academic foundation to facilitate tertiary studies, if the student so desires, while concurrently developing certified technical skills and presenting opportunities for students to accrue

Box 1. The Joint Preparation of this Report

This report was prepared under the guidance of a regional advisory group of government officials from the Ministries of Education and examination bodies in Botswana, Lesotho, and Zambia. The World Bank team is grateful for the guidance, data, case studies, analysis and recommendations of their national colleagues facilitated through six meetings, as well as for the organization of school visits.

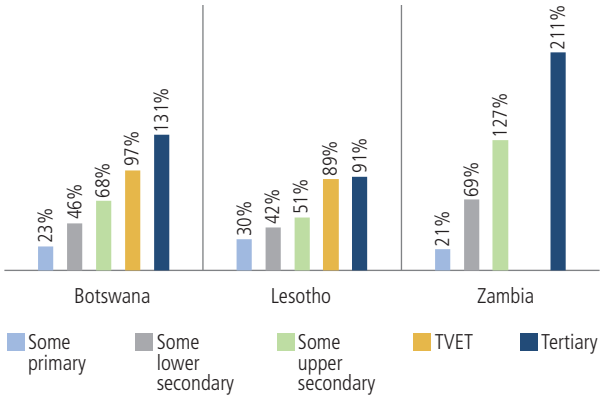
The selection of Botswana, Lesotho, and Zambia for this joint study was based upon expressions of interest from the countries, the shared challenges of youth unemployment, on-going policy dialogues, and World Bank investments in secondary education. As such, this report and associated discussions enhances the Bank's financial support to the countries.

The report draws on a series of World Bank reports on youth unemployment, demographics, employment and job diagnostics, as well as regional skills studies.

This overview builds upon three detailed background studies. One cross-country report on instructional practices and curriculum by the New Jersey Center for Teaching and Learning (USA), and three country-case studies on the structure and assessment of secondary education in Botswana, Lesotho, and Zambia, respectively. In addition, a case-study on technical and vocational education and training (TVET) in Lesotho was carried out for exploring needed reforms in the provision of vocational skills to school leavers.

Figure 1

Education Still Pays Off

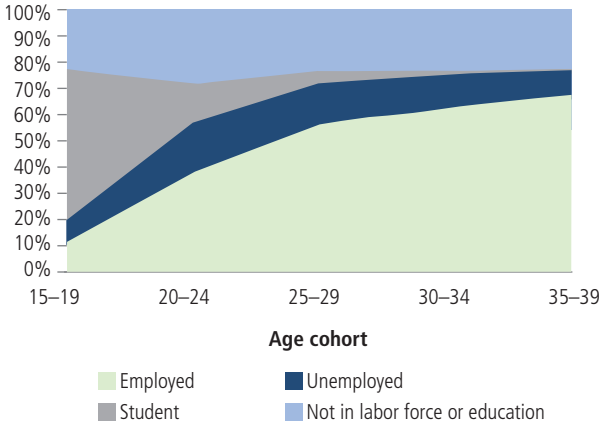


Source: Botswana (2009) & Zambia (2010) Income and Expenditure Survey and Lesotho Household and Employer Survey (2010)

Note: This is based on Mincerian regression. The dependent variable is log of monthly earning and independent variable is years of schooling (level of education) with age and experience effects were controlled. The population age group is 15–64.

Figure 2

Botswana Slow School-to-Work Transition and a Large Share Remains Unemployment



Source: World Bank 2015 for Botswana and World Bank 2017 for Zambia.

job-training through internships. Systemic reforms to secondary education should be implemented in tandem with investments in vocational and technical education, including the modernization of outdated programs, such as woodwork, and the introduction of new programs aligned with growth sectors of the economy, such as information and communications technology (ICT) and tourism.

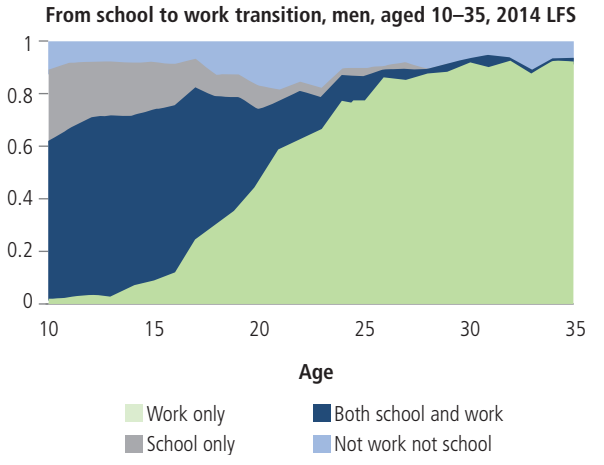
v. *The fifth section summarizes the recommendations from the four sections and tailors the recommendations to each country.*

Overall, the report calls for a reform process of instruction, curriculum, assessment, and structure of secondary education national education movements led by teachers and principals to more effectively develop entrepreneurial graduates with critical thinking, problem-solving, team-working, and strong foundational skills. This should be supported by investments and policies that train teachers in student-centric teaching, as well as an overhaul of student assessment to include school-based assessments.

Education remains one of the best investment decisions an individual or country can make. However, there is evidence of growing challenges relating to the transition from secondary education to work. A graduate with secondary education accrues approximately 20 percent more salary for each year of secondary education. Returns to education in Zambia, in particular, are very high. However, this is an average pay-off of education over 40 years on the labor market. As illustrated in Figures 2 and 3 (for Botswana and Zambia), a large share of youth transitions very slowly from school to work. This is indicated by the size of the upper band of color (not in school or a

Figure 3

Zambia School-to-Work Transition Takes Too Long a Time



Source: World Bank 2015 for Botswana and World Bank 2017 for Zambia in Systematic Country Diagnostics

Box 2. Disparities and Similarities in Botswana, Lesotho, and Zambia's Educational Systems

When examined (see table below), there are some differences in the educational systems of the three countries that affect the quality of education and skills development. Some of which include:

- **Enrollment:** There is a higher enrollment in primary education than in secondary schools across all three countries. With a lower population rate than the other two countries, Botswana, has a higher rate of enrollment in both primary and secondary education. With the higher population rate, the out-of-school children as a percentage of the school-age population in Zambia is at a high of 28% while in Botswana and Lesotho it is 7% and 14% respectively.
- **Transition:** The transition rate from primary education to secondary education in Botswana is higher than the other 2 countries, with Zambia having fewer students transitioning to secondary education.
- **Learning outcomes:** The SACMEQ mathematics scores, with a total of 700, shows that all three countries are above average with Botswana's average score higher than those of Lesotho and Zambia. The student-to-teacher ratio is lower in Botswana, with fewer students to a teacher.

Despite the differences, all three countries face the similar challenge of a steady bulging secondary school enrollment and continued unemployment of secondary education graduates.

	Botswana		Lesotho		Zambia	
	Primary	**Secondary**	**Primary**	**Secondary**	**Primary**	**Secondary**
Official School Ages	6–12	13–17	6–12	13–17	7–13	14–18
Gross Enrollment Ratio (%)	108	86	106	53	104	44
School-Age Population	326,000	219,000	345,000	245,000	3,260,000	1,883,000
Out-of-School Children	27,000	15,000	66,000	34,000	325,000	519,000
Transition Rate from Primary to Secondary (%)	98		87		65	
2014 SACMEQ Math Scores	560		510		480	
Student-to-Teacher Ratio	23	11	33	24	43	35

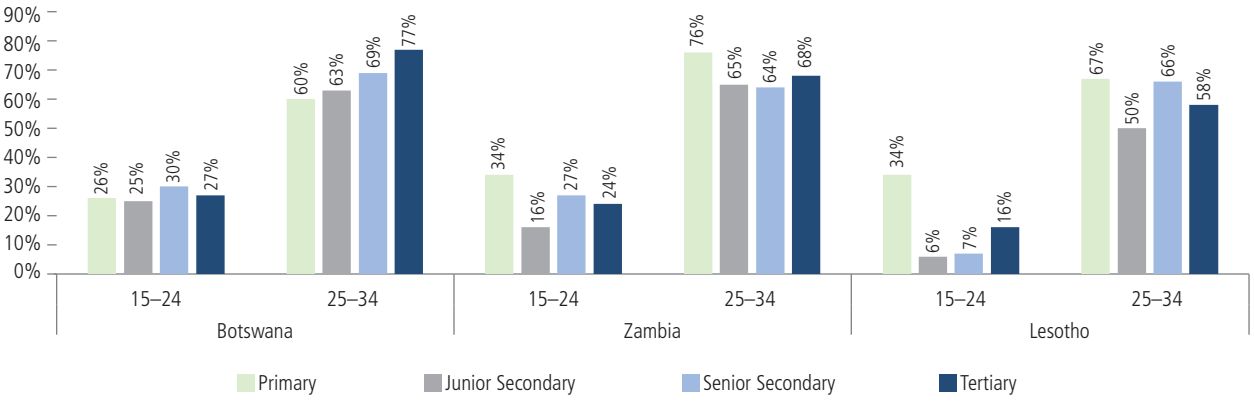
Source: UNESCO UIS 2008–2015; Zambia Ministry of General Education – 2015 Education Statistical Bulletin; Bethel 2016, South Africa Portfolio Committee on Basic Education 2016.

job) and the band capturing unemployed. These bands bulge for the age group 17–24, demonstrating that approximately 15 to 20 percent of youth in this age group does not attend school and does not have a job. Box 2 provides a detailed overview of primary and secondary education statistics. The overwhelming majority of these youth, however, are graduates of secondary education. Disturbingly, labor market data suggests that it takes 10 to 15 years, for youth to transition to employment. Equally important, approximately 10 percent of youth remain unemployed.

Secondary education produces too many graduates who end up unemployed or economically inactive. There are 450,000 out-of-school youth with secondary education who are unemployed in Botswana, Lesotho, and Zambia, respectively, 34 percent (87,000), 34 percent (70,000) and 19 percent (302,000) of young graduates. Figure 4 presents employment rates for young workers by level of education. In all three countries, employment rates for workers aged 15–24 years with lower secondary education is lower than for workers with other levels of education. The same dip in employment rates occurs

Figure 4

Young Graduates with Secondary Education Tend to Have Lower Employment Rates (Employment Rate by Education Level for the Age Cohorts 15–24 Years and 25–34 Years)



Source: Authors, based upon national household surveys

Note: Botswana 2009/2010; Lesotho 2011; and Zambia 2010.

for workers in Zambia and Lesotho with senior secondary education, and continues into the age cohort 25–34 in Zambia. Analysis demonstrates that the rate of unemployment differs only marginally for male and female workers. Urban youth unemployment is slightly higher than rural youth unemployment, but the pattern of lower employment of secondary education graduates remains consistent. The costs associated with high youth unemployment are significant, and is represented in tremendous in inflated levels of poverty, low levels of happiness among affected youth, and lost GDP. A back-of-the-envelop-calculation suggests that if unemployed youth had earned the average salary of their employed peers, the high youth unemployment results in a loss of approximately US $36 million in Botswana and US $200 million in both Lesotho and Zambia in terms of lost wage income.

Secondary education is expected to continue to expand in the future, with the potential of adding additional youth to the current ranks of unemployed secondary education graduates. Botswana is one of the leading countries in Africa in terms of access to secondary education, with a gross secondary enrollment rate of 86 percent. Lesotho and Zambia demonstrate gross secondary enrollment rates of 53 and 45 percent, respectively. As illustrated in Figure 5 below, in 2030, four of five workers in Botswana and one-third of Lesotho's workers are expected to have secondary education. The writing on the wall is clear: Graduates of secondary education must be better prepared for the world of work. If not, challenges associated with youth unemployment will balloon.

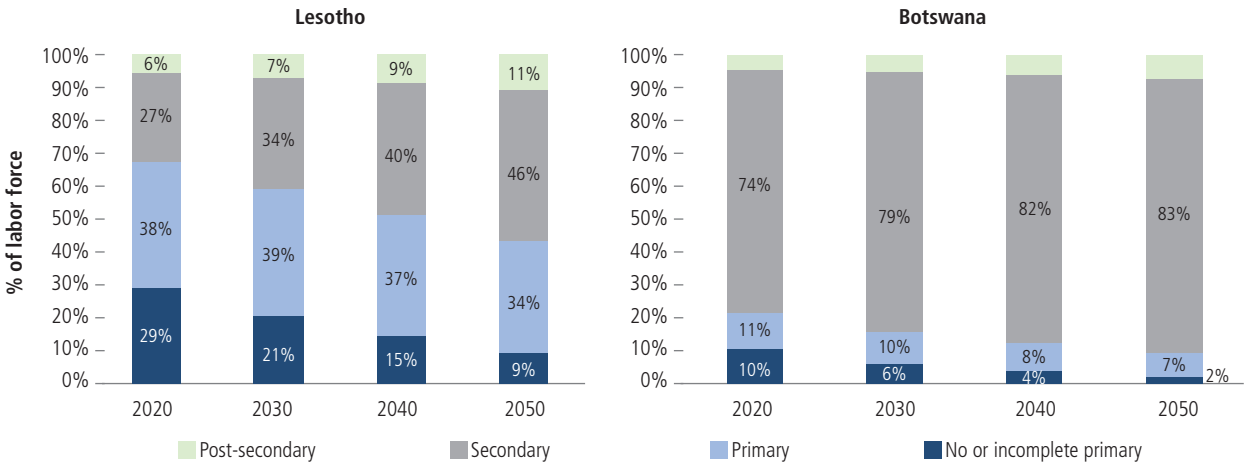
Youth unemployment is a function of labor demand, labor supply, labor regulations, and market information. Labor demand is strongly influenced by economic growth and overall economic policies. Many studies find that labor demand for different kinds of skills have changed significantly in recent decades due to shifting national, regional, and global trends (See Box 3). While these trends are not the subject of this report, it is important to understand that current demand for specific skills, and, as a consequence, the relative job-readiness of graduates, may change in the future in line with changes in the economy, technology, and society. This eventuality requires an emphasis on the value of generic skills emphasized in general education and skills associated with continuous learning. With this important caveat in mind we turn to analyze job-readiness.

What are the key reasons for low level of job-readiness?

Assessing job-readiness requires an analysis of employer perceptions of graduate skills. Employers hire graduates and are the best source for information on

Figure 5

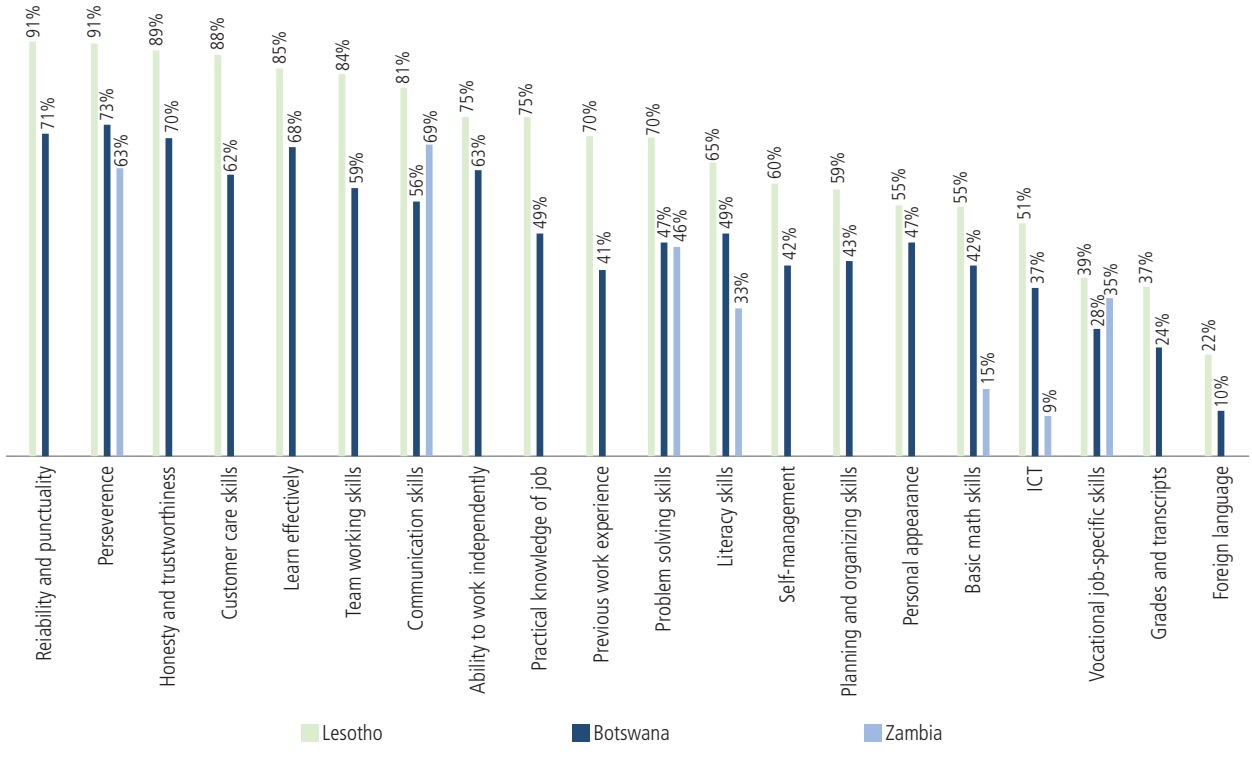
Projected Share of Labor Force with Secondary Education



Source: World Bank "Changing Demographic in Southern Africa."

Figure 6

21st Century Skills (Attitudes) are Rated Most Important by Employers



Source: Authors, based upon Botswana Employer and Employee Survey 2010; Lesotho Employer Skill Survey 2011; and Zambia Firm Level Survey 2016.

Note: Ranking of skills rated as very important and crucial for skilled workers by employers.

Box 3. Mega-Trends Changing Labor Market Demand and Hence "What Constitutes A Well-Prepared Graduate?"

Sub-Saharan Africa, like the rest of the world, faces three mega-trends that are reshaping the global economy, rapidly changing the demand for skills, and presenting both opportunities and challenges for skills development policies:

i. **Population shifts.** First, the region's potential demographic dividend engendered by lower fertility rates will leave more resources to invest in early childhood development and education. If increased resources are successfully invested, younger and larger cohorts of skilled workers will rapidly increase the share of skilled workers. However, larger cohorts of students will require increased funding for the expansion of the education system. The second significant population is occurring through urbanization. More urban youth can facilitate a better match between workers and jobs as well as agglomeration effects, but also eliminates agriculture as a default source of employment. Rapid urbanization increases risks associated with urban unemployment and political unrest.
ii. **New technologies** such as digitalization and broader technological and organizational change can increase the risk of "jobs polarization" in the form of faster rising employment in high- and low-skill occupations and stagnation or decline in middle-skilled occupations. In this context, returns to investment in ICT and critical thinking skills may increase, but returns to manual non-routine jobs such as driving could dramatically drop.
iii. **The integration of Africa into shifting global value chains.** Production in both manufacturing and services takes place in interlocked global value chains. This is likely to increase the demand for skills, but also require closer coordination between education institutions and firms. It may also create mismatches in the supply of, and demand for skills as Africa increasingly integrates and African firms tap into newly developed higher value-added and export-intensive activities.

These forces will shape the types of jobs available, as well as the demand and the opportunities for skills acquisition, especially for new cohorts of sub-Saharan Africans. On the other hand, the skills of the workforce will influence how these trends play out for the region's economic transformation. The impact of mega-trends necessitate improved investment in skills development and a close focus on the skill requirements of firms, sectors, and nations.

Source: Africa Regional Skills Report, World Bank (Forthcoming).

what constitutes a job-ready (employable) graduate. Botswana, Lesotho, and Zambia all have recent employer surveys. All firm surveys ask questions regarding the relative importance of specific skills in the hiring decisions on the part of firms. The most recent employer surveys use slightly different skill categorizations which imposes some limitations on the analysis.

21st century skills, as described in Box 4, including personal or socio-emotional skills such as self-management (punctuality, reliability, perseverance and hard work) are consistently rated highest by employers. Figure 6 presents the list of skills ranked highest by employers. The employer surveys from Botswana and Lesotho are similar in design and asked each employer to rate the importance of a set of skills. The Zambia survey (2016) asked employers to rate the three most important skills. As a consequence, the Zambia ratings are lower. Despite these methodological differences across the two types of surveys, the relative ranking of skills identified as important are similar across the countries: Most important are personal traits (reliability, perseverance, honesty, and teamwork). These are generally followed by thinking skills (learning, ability to work independently/taking initiative, and problem solving). Foundational skills (reading, writing, and basic math) are ranked as relatively less

Box 4. What are 21st Century Skills? Key Concepts

This report analyzes education and skills using the skills categorization called 21st century skills. Specifically, these skills can be defined as transferable, core skill groups that represent essential functional and enabling knowledge, skills, and attitudes that are required in the 21st century workplace: The nine 21st century skills categories are:

Foundational academic competencies. These skills are learning outcomes traditionally associated with basic education:

- Graduates read and write at a level required for the workplace or postsecondary education.
- Graduates listen and speak (communicate) in a way that allows for continual learning, evaluation and effective verbal communication in a variety of media.
- Graduates perform basic mathematical computations and choose appropriate mathematical techniques to solve practical problems.

Thinking skills. These are cognitive skills and learning outcomes related to Bloom's taxonomy of cognitive learning domains discussed in education literature and is correlated with IQ) Bloom 1956):

- Graduates solve problems by recognizing them, using reasoning, and devising and implementing logical plans.
- Graduates will learn effectively.
- Graduates use technology effectively by selecting, applying, and troubleshooting technology.
- Graduates will think creatively and take initiative and demonstrate entrepreneurial skills.

Personal socio-emotional skills (personality traits). These includes skills often referred to as attitudes or generic employability skills or soft skills and are closely related to the 'Big Five' personality traits outlined in psychology literature {Heckman and Krautz 2015):

- Graduates will demonstrate self-management, including accurate self-assessments, responsibility, perseverance, goal setting, and will display integrity and honesty.
- Graduates will work well in teams, including with men and women from diverse backgrounds and will show sociability and empathy.

In addition to these 21st century skills, this report refers to technical (vocational) skills as those abilities needed to carry out one's job, such as a plumber's ability to repair a water leak, or a worker's ability to operate a machine in a factory.

The above competencies are core of many curriculum standards (such as the International Baccalaureate and the US Common Core standards), education evaluations, such as PISA by OECD, and economic reports from the World Bank.

Source: Authors, based upon Heckman and Krautz 2015; Bloom 1956; IBO 2015; World Bank WDR 2016 and 2018; OECD 2016.

important. It is likely that foundational skills are rated less important because of the widespread distribution of these skills in the three countries concerned.

The importance of technical skills for certain jobs. When analyzing employer surveys, it is important to bear in mind that the scores are averages of groups of employers. Each employer is likely to select among candidates based upon the specific skills desirable for that particular position. On average, socio-economic skills (personal traits) very often appear as the most sought-after skills (Blom and Saeki 2012). Another common term for

personal traits is "generic employability skills." However, it is important to note that in the surveys, technical/occupational skills such as practical knowledge of the job, and ICT skills, are generally located in the middle of the ranking, while vocational job-specific skills are towards the lower end. Hence, a set of employers are looking for practical skills and relevant job experience, obtained for example through an internship, especially when job-related trade skills are combined with 21st century skills.

The sectoral distribution of employment is slowly changing in the three countries. What are the implications for demand for skills and for learning objective for secondary education? Consider the following four stylized facts on sectoral distribution of jobs evident from three employment and job analyses—Merotto 2017; World Bank 2014; and World Bank 2015:

i. *The agriculture sector will continue to absorb a large share of the workforce*. Respectively, 27 percent, 41 percent, and 67 percent of the workforce in Botswana, Lesotho, and Zambia worked in agriculture for the latest available year. This is primarily subsistence agriculture. As discussed in World Bank (2017), literacy and socio-emotional skills have been found to have significant returns for African farmers. Further, vocational training for workers in agro-business, including livestock and food production, post-harvest and farm-mechanics is also relevant.
ii. *The service sector is expanding rapidly in all three countries*. In Zambia, the service sector accounts for 36 percent of all formal jobs and experienced the highest growth rate in comparison to other sectors from 2003–2010. In Lesotho, the service sector provides a third of employment and 60 percent of GDP. The growth of the service sector is a common feature across sub-Sahara African (SSA) economies. Also, the three countries' development strategies include a focus on tourism and hospitality, ICT, and other expanding service sectors such as wellbeing and health and real estate. Often employers in the service sector looks for "trainability" and socio-emotional skills with vocational skills learned through on-the-job training. This is the case for the hospitality sector. However, another set of service sub-sectors demand higher education qualifications linked to ICT, management, and the financial sector.
iii. *Sectors intensive in vocational skills remain significant in Botswana, Lesotho, and Zambia*. These sectors (construction, manufacturing including textiles, utilities, transport, and mining) account for 20 percent, 28 percent, and 30 percent of jobs in Botswana, Lesotho, and Zambia, respectively. Although, these sectors overall have declined in terms of share of employment, they remain critical to the economies and some have expanded moderately in the recent period. For example, the textile sector contributes to 20 percent of Lesotho's GDP and employs 40,000 people. Beyond the importance of generic socio-emotional and thinking skills, referenced earlier, firm and employer surveys in Lesotho and Botswana point to a shortage of technicians, and specific construction trade, such as roofing, reinforcement, steel fixing, and concrete mix design. Often employers voice concern of the trainability of candidates and the poor practical quality of candidates.
iv. *A persistent dominant level of informality*. In Botswana, Lesotho, and Zambia, 62 percent, 37 percent, and 13 percent, respectively of the workers have formal job-contracts. The remaining are informal workers. Most work in subsistence agriculture but some are self-employed in the non-farm sector (1/3 in Botswana and 1/4 in Zambia). Although, formality is increasing in all three countries, informality will remain for decades. These future self-employed workers equally benefit from foundational skills (reading, writing, and math) as well as socio-emotional skills.

The bottom line is that the current and future jobs will be across the economy in many sectors. Sectoral employment shares are changing slowly. Therefore, **future graduates of secondary education will work in all economic sectors. Consequently, secondary education must first prepare graduates demonstrating the foundational, broadly applicable skills, such as thinking and socio-emotional skills.** This will make them trainable for specific vocational skills. Second, individual sectors demand a range of vocational skills, which secondary education could teach students in order to better qualify for a job upon graduation. As argued in section IV of this report, quality vocational education options should be introduced in

senior secondary to better prepare graduates for a job. For vocational courses, a place-specific and sector-specific labor demand analysis is critical to ensuring relevance and quality of vocational secondary education.

From this analysis, it can be concluded that graduates from secondary education must demonstrate broader 21st century skills beyond the foundational (reading, writing, and math) skills to be job-ready. Further, a sub-set of graduates, particularly those not proceeding to a university education, would benefit from improved vocational skills to successfully transition to the world of work.

The rest of this report is devoted to a discussion of how secondary education can be reformed to develop 21st century skills and vocational skills. In particular, the next section will discuss how well current instructional techniques develop 21st century skills in students. The subsequent section will evaluate how curricula and assessments can be more effectively aligned with learning 21st century skills. The fourth section of the report will discuss how the current structure of secondary education in the three countries provides opportunities for the acquisition of job-relevant vocational skills.

Review of Teachers' Instruction Techniques for the Development of 21st Century Skills

2

This section focuses specifically on the most important part of education: teaching and learning in the classroom. It explores the current state of instruction in Botswana, Lesotho, and Zambia to inform recommendations for innovation to support the inculcation of 21st century skills. The section summarizes a background study entitled "Evaluation of Secondary Education in Botswana, Lesotho, and Zambia – *The Alignment of Curriculum, Assessment, and Instruction with 21st Century Skills*".

The report provides new and innovative information from classroom observation. Structured classroom observation is necessary to understand why students graduate with shortcomings in terms of 21st century skills. The report's methodology consists of classroom observation using the instructional rounds approach. Box 5 describes the methodology applied in the three countries including the ratings on classroom environment, instructional findings and student and teacher behavior.

Given the limited sample of observed classrooms, we caution against over-interpreting the findings. A total of 18 classrooms observations were conducted in six secondary schools per country. Consequently, this sample is not nationally representative. However, the sample and the consistency of the results give a clear indication of what is happening in Batswana, Lesotho, and Zambian classrooms. The team conducting the observations included government teacher-training experts. The World Bank team recommends that the current sample of classroom observation be expanded to enable the use of a national representative sample for further analysis, and that classroom observations become a mandatory tool for in-service teacher training in the three countries.

Instructional Findings

In all three countries, the study found that students and teachers demonstrate good basic behavior, classes are undertaken seriously, and the classroom environment meets basic standards. The students are attentive and focused in their work. Generally speaking, all scores are higher than 2 out of 4 (somewhat evident). Students participate in activities as directed by teachers. During direct instruction, the students track the teacher, take notes and listen. Students demonstrate the basic academic skills required for learning and generally arrive for class prepared with materials and completed homework (to a lesser extent in Zambia). Similarly, teachers demonstrate the basic requirements for effective teaching. With an evaluation of higher than 3 (mostly evident), there is strong evidence that teachers speak to students clearly and succinctly. Further, teachers ask open questions thereby strengthening student participation, premise their teaching on prior knowledge, and are committed to their students. With regards to the classroom environment, learning time is sufficient. Classes are organized in a way to retain the maximum of students' attention. Schools generally have school calendars and daily schedules to facilitate time for learning. Classes meet for at least 140 days annually and the length of a class is organized in 40–60 minute periods so that students can retain their focus. Figure 7 presents student and teacher indicators for the three countries.

However, instruction in all classrooms observed across all three countries was generally teacher centered. The majority of teaching observed is traditional, with a strong focus on lecturing wherein most of the talking is done by teachers. Teachers generally write notes on blackboards,

Box 5. Instruction Review

To understand status across the three countries over a short period, instructional rounds were adopted. The approach enables a comparison of instructional practices across classrooms. The instructional rounds process includes:

i. Identify the problem of practice: Students are not acquiring 21st century skills necessary to obtain employment after graduation.
ii. Create a tool that allows for a quick tallying of data using pre-established standards: a rubric delineating the presence of pedagogy that supports specific 21st century skills, sorted into three categories of questions:
    - What is the status of the classroom environment in terms of time, space, and materials?
    - What are the students doing?
    - What is the teacher doing?
iii. Classroom activity and infrastructure were rated on a scale of 1 (not evident), 2 (somewhat evident), 3 (mostly evident), and 4 (extremely evident).

Eighteen junior and senior secondary education classrooms were visited in the three countries. These were a mix of urban and rural, performing and non-performing schools. However, the budget did not permit visiting very remote schools or to achieve statistically national representativeness.

However, observations were consistent with findings for other schools visited before and after the period of data collection.

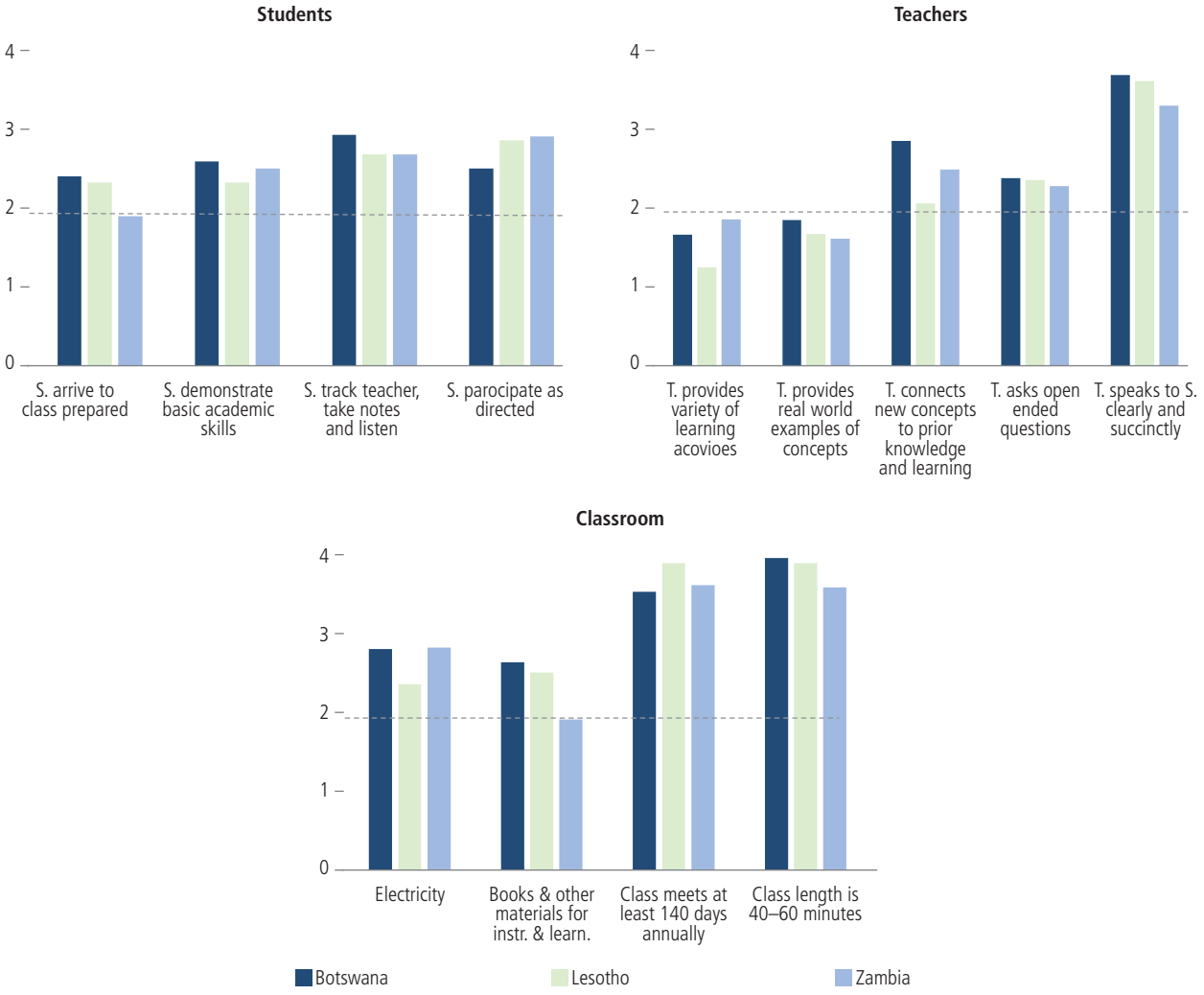
while students raise hands to answer questions and take notes. Most scores for indicators evaluating student participation and the relative position of the student as the center of learning were below 2 (somewhat evident). Students in the classroom observations were generally passive—not asking questions or seeking support from other students and teachers, Figure 8. It seems that instruction is relatively more student-centric in Botswana.

Student teamwork, collaboration and active learning are generally absent. There is no evidence that the pedagogy in the three countries strengthens teamwork, with almost all scores related to group activities recorded below 2. Students are generally seated in rows, and not in heterogeneous groups which would facilitate discussions and group work. Since the curriculum and assessment methodologies do not generally assess teamwork related activities, there are no specific materials to facilitate group activities and teachers do not assign group work. Students work alone, do not seek support from other students or the teacher, generally do not challenge their peers, and do not provide constructive feedback to one another. There was some evidence that Zambian students engage in more meaningful academic dialogue with their peers.

Pedagogy does not foster critical thinking. While teachers in the three countries observed ask open-ended questions, most answers to these questions require only rote (memorized) responses regarding specific facts. In addition, teachers tend to give answers to students' questions instead of pushing them further with guiding questions to foster analysis and critical thinking. Most students do not try, and are most of the time not encouraged to investigate other strategies to find solutions to problems. When they become stuck while solving problems, students wait for teachers to provide answers, instead of trying to find solutions through alternative means or student-to-student discussion. Batswana teachers seem to perform better compared to their Zambian and Lesotho colleagues in pushing students to use critical thinking, in connecting new concepts to prior knowledge and learning, in providing feedback to students and in affirming effort on the part of students. Figure 10 presents instructional indicators on fostering critical thinking and problem-solving in each country.

Figure 7

Good Basic Student and Teacher Behavior as well as Basic Classroom Environment



Source: Authors, based on classroom observation data from NJCTL, 2017.

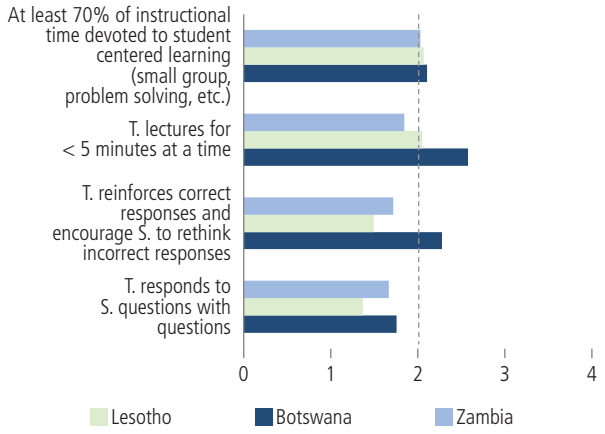
While the setup of the classroom environment allows for the acquisition of basic learning it is insufficient to facilitate the inculcation of 21st century skills. As illustrated in Figure 11, significant challenges were evident with regard to the learning environment, including a lack of Wi-Fi, and a general absence of appropriate technology, learning materials and resources for demonstration and experimentation, as well as reference materials. With the exception of Zambia, where some evidence of using learning materials for experimentation and group work was observed, scores for classroom environment indicators are relatively low. Basic resources, such as access to electricity, remain a challenge in many schools, particularly in Lesotho.

Recommendations on Instruction

Improving instruction is the most effective intervention for improving student learning. Instructional Analysis of data for SSA countries by Spaull (2007) suggests that simple improvements in pedagogical practices can improve student learning in mathematics, equivalent to more

Figure 8

Teacher-Centered and not Student-Centered Instruction

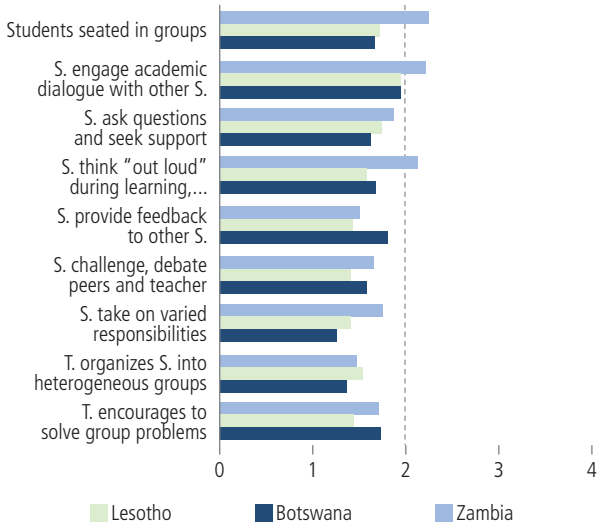


Source: Authors, based on classroom observation data from NJCTL, 2017.

demanding interventions to raise the content knowledge of the weakest 10 percent of teachers to match that of the top 10 percent of teachers. Analysis of 86 impact evaluations of effective education interventions in SSA demonstrates that the effect of programs that improve teacher pedagogy or classroom instructional techniques was approximately 0.30 standard deviations greater than all other types of programs combined, or equivalent to approximately 60 percent more learning in one school year (a rule-of-thumb is that a student learns about 0.5 standard deviation by year). Limited evidence presented by Conn (2017) suggests that pedagogical programs that employ adaptive instruction, or teacher coaching, were particularly effective.

Figure 9

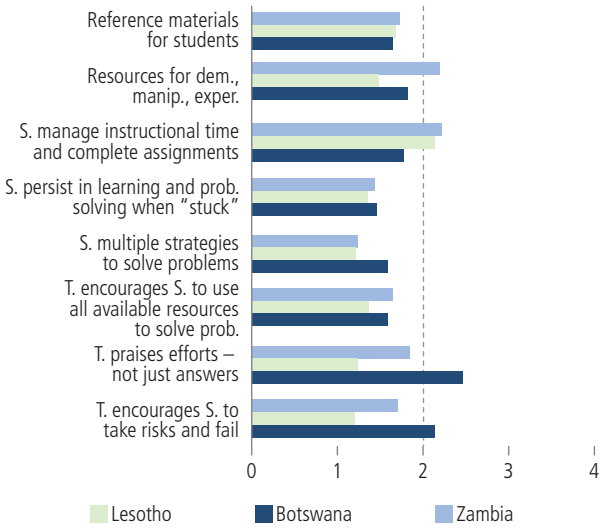
Evidence of Teamwork Activities



Source: Authors, based on classroom observation data from NJCTL, 2017.

Figure 10

Problem Solving and Critical Thinking in Botswana, Lesotho, and Zambia

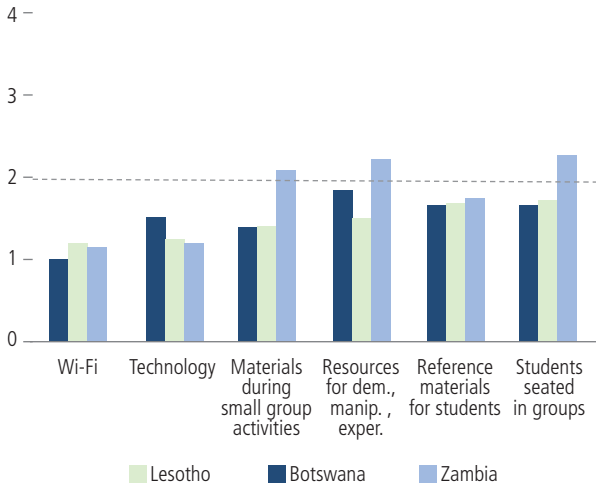


Source: Authors, based on classroom observation data from NJCTL, 2017.

The effective development of 21st century skills requires a change in the roles of students and teachers, and that instruction become more student centered with a greater focus on group work and activities. Teachers should move away from dispensing information, assuming authority, and being expert, in favor of improved monitoring, inquiry, and educational coaching. Students need to be discouraged from limiting their learning to passive listening, and received knowledge, and more actively engage in discovery and making knowledge. At least 70 percent of instructional time should be devoted to student-centered learning premised on group work, problem solving, and other activities. If students receive feedback to reinforce correct responses and are encouraged to rethink incorrect responses, if they are asked to challenge and debate peers and teachers, ask questions and seek support through the learning process, students

Figure 11

Technology is not in the Classroom Yet in Botswana, Lesotho, and Zambia



Source: Authors, based on classroom observation data from NJCTL, 2017.

will strengthen their critical thinking and communication skills. Students should be encouraged to take risks and to fail in order to learn. It is recommended that schools begin by focusing on the following learning objectives:

- Graduates will listen and speak in a way that allows for continual learning, evaluation and effective verbal communication in a variety of media;
- Graduates will work well in teams; and
- Graduates will demonstrate self-management.

By increasing the amount of time devoted to student discussion in the classroom, having students collaborate in teams, and shifting the responsibility for learning to students, teachers will significantly improve the acquisition of 21st century skills among their students. These pedagogical shifts can be accomplished through relatively simple training focused on easy-to-implement teaching strategies, delivered through very short (1–2 minutes) videos and/or illustrated charts. Examples of 21st century teaching strategies include:

- Turn and Talk – the teacher asks a question and has pairs of students turn and talk to each other about the responses;
- Collaborative Learning – students are organized into small groups and are given a task to complete according to assigned roles (i.e. leader, note taker, reader, etc.);
- Easy Math Models – students utilize simple everyday objects like rocks, paper, water bottles, sticks to provide three-dimensional models of mathematical concepts;
- Role Play – students act out historical events or fictional stories to develop language skills; and
- Consensus Building – students are organized into pairs or small groups and work to convince each other of opposing opinions to open-ended questions.

The Shanghai province school system, one of the top performing systems in the world for the learning of mathematical skills demonstrates a similar approach to teaching and learning. The Progressive Mathematics Initiative – Progressive Science Initiative (PMI-PSI) developed by the New Jersey Center for Teaching and Learning (NJCTL) offers another example for teaching mathematics and science through the integration of 21st century skills. Boxes 6 and 7 present key success factors and principles for classroom interaction in Shanghai and using the PMI-PSI approach, respectively.

Collaborative Lesson Planning will allow teachers to grow professionally. It is recommended that each country initiate structures and processes that allow teachers to collaboratively plan their lessons and learn from one another. Specifically, it is recommended that Botswana, Lesotho, and Zambia:

- Provide teachers with a common lesson planning protocol so they can plan and structure learning in line with the suggested teaching and learning strategies;
- Provide a structure for teachers to work together in groups to plan lessons. Teaching should also be conceived as teamwork and with school-level research on how their students learn most;
- Provide supervisors with a protocol to visit classrooms and coach teachers to effectively utilize new strategies for teaching and learning; and
- Adopt a simple mantra for teachers to support new teaching strategies, such as "Never talk for more than five minutes."

Box 6. Shanghai Key Success Factors

The results of the last international PISA tests indicate that Shanghai is one of the top performing education systems in the world. The key educational factors underlying its success are: (i) teaching and learning philosophy; (ii) teachers' subject knowledge; (iii) curricular organization; (iv) textbooks, teacher guides, and practice books; (v) pedagogical practices; and (vi) teacher policies including teaching and group research.

The pedagogy in Shanghai is based on: (i) structured lesson plans: a review of previous lesson, the introduction of new knowledge points, modelling of problems, student practice, and homework; (ii) multiple approaches for analyzing and teaching each knowledge point; (iii) practice and drill to memorize basics; (iv) taking small steps to solve a complex problem; (v) ongoing classroom assessment; and (vi) homework and involving parents.

With regards to classroom interactions:

- Teachers are encouraged to: (i) ask questions, elicit and listen to answers, (ii) use discovery strategies, and (iii) provide interpretation and feedback.
- Students are discouraged from: (i) being left to explore entirely on their own, and (ii) being passive in the learning environment. Good practices include: answering questions in class, exploring, and actively collaborating with peers.

Source: How Shanghai Does It, World Bank (2016); MS4SSA conference.

These simple steps can be implemented relatively quickly, allowing for change to begin while the countries explore ways to improve the provision of electricity, Wi-Fi and other inputs, and to commence restructuring of the curriculum and methods of instruction.

To more effectively achieve improvements in classroom instruction, governments should design complimentary and effective, large-scale teacher in-service training. Many in-service training programs have been implemented. Some of these programs demonstrate significant impact and cost-effectiveness, while many demonstrate little impact, and high costs. Popova, Evans, and Arancibia (2016) report *Training of Teachers on the Job: What Works*, found that there is limited and insufficiently rigorous evidence to draw detailed conclusions about what works and what does not work with regard to teacher training, even in rich countries. However, the report found suggestive evidence that in-service teacher training programs in high-income countries have been most effective at improving student learning in contexts where training programs:

- Are effectively embedded in the curriculum and linked to the subject matter, be it language or math;
- Prescribe a specific teaching method with detailed instructions for implementation;
- Include significant and sustained in-person follow-up support for teachers, as opposed to one-off training sessions; and
- Involve teachers in a co-learning model, to promote interaction and collaboration among teachers. Teacher training should be active learning, just like student learning.

Box 7. Progressive Mathematics Initiative-Progressive Science Initiative (PMI-PSI)

The Progressive Science Initiative and Progressive Mathematics Initiative (PSI-PMI) developed by the New Jersey Center of Teaching and Learning (NJCTL) consists of open source digital materials that teachers can download and use to support teaching in mathematics and science. All course content includes instructional materials and assessments, and is aligned with either Advanced Placement (AP) science exams (in physics, chemistry, or biology) or the US Common Core State Standards. PMI and PSI instruction is characterized by 5–10 minutes of direct instruction followed by a period of small-group discussion and problem solving. This method of instruction is based on the theory that individuals construct knowledge through group interaction. Instruction is further characterized by the use of technology such as whiteboards and polling devices that allow content to be shared across classrooms, to allow for increased collaboration between students, and real-time formative assessment as content is delivered.

Source: New Jersey Center of Teaching and Learning (NJCTL).

Does the Structure of Curriculum and Assessment Foster 21st Century Skills? Review of Curriculum and Assessment at Junior and Senior Secondary Levels

3

In all three countries, there is evidence of the successful development of foundational academic skills, particularly in Botswana. Curriculum (and assessment) in all three countries are structured to allow students to develop competencies in reading and, to a lesser extent, writing. However, there was no evidence of explicit instruction in the skills necessary for literacy in science disciplines. Students need to be directly taught how to read and write in scientific and mathematical contexts. There should be a greater emphasis on developing language and vocabulary to support mathematics and science education in the English curriculum. One area that illustrates this point is "infer or locate the meaning of unknown or technical vocabulary." Botswana's curriculum and assessment methodology require evidence that students are able to listen and speak in a way that allows for continual learning, evaluation and effective verbal communication in a variety of mediums. This is not evident in Lesotho and Zambia.

Curricula in Lesotho, Zambia and Botswana present little evidence of interdisciplinary problem solving, teamwork, initiative/entrepreneurship, self-management, learning, and technology. In Botswana and Lesotho, there is some evidence for the development of problem-solving skills, but this does not include decision-making or the ability to specify goals and constraints, generate alternatives, consider risks, and evaluate and choose best alternatives. There is no evidence that students are encouraged to generate new ideas by using their imagination freely, to plan and organize events, to take responsibility, or to set goals. The curricula reviewed do not expect students to learn how to choose among technologies nor use technology to identify or to solve problems. Technology allows teachers to efficiently link the curriculum and assessment results to classroom practices. It provides access to and utilization of open education resources and materials, which can facilitate collaborative learning and allow teachers to monitor students and do continuous formative learning assessment. For example, the utilization of polling devices in the classroom helps teachers record instantly wrong and right answers from each student allowing them to provide individualized assistance to each student. Lastly, there is no mention in the curriculum of activities to strengthen teamwork. The average scores for these nine indicators constituting the 21st century assessment of the curriculum and assessment packages are collated in Figure 12.

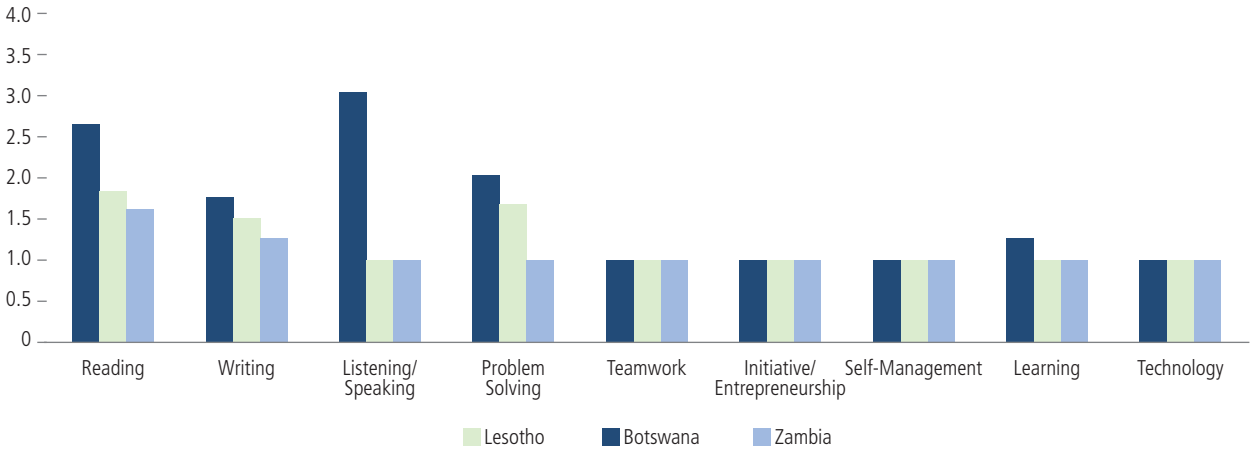
Box 8. Curriculum and Assessment

A review of all available curricula and assessment materials in Botswana, Lesotho and Zambia was undertaken. The stated learning objectives of secondary education curricula and the skills to be assessed were compared against the list of 21st century skills. A qualitative evaluation of whether the development of 21st century skills was included as a learning objective was included in the review of curricula. A similar qualitative evaluation was applied to assessment packages to assess the extent to which the assessments evaluated a student's demonstration of 21st century skills.

The Scores range from a 1 (not evident) to 4 (extremely evident) for each skill.

Figure 12

Average Score of Curriculum and Assessment Indicators for the Three Countries



Source: Authors, based on classroom observation data from NJCTL, 2017.

Curriculum

All three countries are reforming curricula to integrate a focus on competencies. Initiatives associated with these reforms should be encouraged and accelerated. Cognizant of weaknesses in their curricula, all three countries have commenced curricula reform. For example, Lesotho completed the rollout of a new curriculum for primary education in 2016, and commenced the piloting of the new integrated curriculum for junior secondary education in 2017. The following should constitute the foundational principles for curricula reform for secondary education:

- Core Skills and 21st Century Skills, developed through a core program for all learners;
- In later stages, students should have considerable choice in subjects to accommodate their strengths and aspirations and to open up relevant and accessible Learning Pathways;
- The provision of a range of subjects that is responsive to both personal development and national (economic) development needs;
- A frank and fair re-conceptualization of existing subjects and syllabi, to ensure that the curriculum is not overloaded or outdated, and that it is relevant to the needs of the contemporary economy and the next 10–15 years;
- An appropriately balanced allocation of time to different subjects reflecting the subject's function in the Secondary Curriculum, as well as its relation to personal and national development; and
- A Secondary Curriculum that incorporates an appropriate balance between the various competing requirements of any general education curriculum (i.e. balanced core, elective, time, content, personal and national development needs, personal strengths and aspirations, and relevance for the present and the future).

Many countries incorporate Project-Based Learning as part of their curriculum to strengthen the core curriculum and to more effectively develop 21st century skills. Box 9 articulates the principles of Project-Based Learning.

Assessment

It is often stated that 'assessment is the tail that wags the dog.' Interventions that focus solely on curriculum

Box 9. Project-Based Learning

Project-Based Learning (PBL) is a pedagogical approach that focuses on: (i) student learning of academic content, (ii) critical thinking and problem solving, (iii) collaboration, and (iv) self-management. PBL has shown to improve student learning, and has key features that are present on a continuum, depending on the context and purpose of the project. PBL also requires teachers and students to take non-traditional approaches towards working collaboratively.

PBL projects require students to apply knowledge to address authentic problems, work productively with other people, learn about new topics independently, communicate effectively in written, oral, and visual forms, and deliver meaningful results.

The essential elements of PBL are:

- Key Knowledge, Understanding, and Skills—knowing what you want students to acquire;
- Challenging Problem or Question—the core of the project: engage without intimidation (creates a real need to know something);
- Sustained Inquiry—An extended process of asking questions, finding resources, and applying information;
- Authenticity—Real-world context, tasks and tools, quality standards, or impact;
- Student Voice & Choice—Students make decisions, including how they work and what they create;
- Reflection—Students reflect on learning, the effectiveness of their inquiry, the quality of their work, and obstacles;
- Critique & Revision—Students receive and use feedback to improve their process and products (formative evaluation); and
- Public Product—Students make their projects work public by explaining, displaying and/or presenting it beyond the classroom.

Source: Worcester Polytechnic Institute.

and pedagogy, in the absence of an effective assessment mechanism, will not be sufficient to effectively develop 21st century skills.

Current methods of secondary educational assessment in the three countries under review rely almost exclusively on national examinations. Teachers, in general, do not utilize formative assessment techniques to continuously assess student learning and understanding. An almost exclusive focus on pass-rates significantly undermines the development of skills and competencies by reducing the practice of teaching to drilling rote-learning of standard examinable knowledge. At present, national examinations often take on an extraordinary important role and dictate what happens in schools. However, these examinations only measure part of what learners need to effectively navigate the labor market, and neglect to evaluate skills and competencies that cannot be accurately assessed through national examinations.

Skills and competencies can be measured through School-Based Assessment. Classroom activity should be characterized by learning that is rich and wide-ranging and aligned with the curriculum, which should act as a guide. Assessment should seek to evaluate the extent to which learners are indeed acquiring all aspects of this rich and broad learning. In a competency-oriented curriculum the richness of the learning lies in the fact that the goal is to support all learners in acquiring certain competencies, as defined in the curriculum documentation (the subject syllabi). Formative assessment is used by teachers to improve teaching, and by students to improve learning. Assessment should help students identify their strengths and weaknesses, and target areas that require additional

Box 10. Shanghai Student Assessment System

In Shanghai, assessment systems are composed of three main types of assessment activities:

1. Classroom assessments (continuous or formative assessments) are carried out as part of daily classroom activities and encompasses homework assignments
2. Examinations punctuate students' progression through the education system (end of junior secondary that also serves as entrance exams to senior secondary and end of senior secondary (which also counts for college entrance exam).
3. National large-scale assessment (and international smaller-scale assessment)

Source: Liang, et al. (2016)

work. All three countries under review are in the process of reforming their assessment systems in tandem with curricula reform. In Lesotho, for example, a national learning assessment mechanism for junior secondary education is in the process of being prepared, while commencing in 2017, the high-stakes national examination administered at the end of primary education has been replaced by a system for continuous classroom based assessment.

An assessment framework should be produced to guide new forms of assessment to be developed and implemented to support improved student competencies and skills development. Such a framework should convene all key stakeholders to design a national assessment system that appropriately reflects the learning goals of the new competency-oriented curriculum, and provide all three countries with an appropriate and transparent assessment regime aligned with a syllabi and teaching practices that more effectively ensure job-readiness. Box 10 details an example of effective student assessment system from Shanghai.

A Structure that Incorporates Multiple Pathways for Senior Secondary Education Will Best Develop Job-Ready Graduates

4

This section of the report examines the structure of secondary education in Botswana, Lesotho, and Zambia, and is intended to complement the instructional analysis from Section 2 and the review of curricula and assessment tools in Section 3. The purpose of analyzing the structure of secondary education is primarily to examine the opportunities available to learners for acquiring job-relevant technical skills through secondary education. This links to Section 1's analysis of the labor market, which found that employers demand technical skills. These skills appear to be associated with a quicker transition from school to employment. This section summarizes three detailed case-studies from Kuiper (2017) on the structure and assessment of senior secondary education in each of the three countries. The case-studies describe how Botswana and Lesotho operate a one-size-fits-all structure, with a predominant emphasis on the formation of academic skills and the preparation of secondary learners for university studies. Zambia recently has introduced a vocational pathway in both junior and secondary education. This report endorses the multiple pathway model as a more effective structure allowing students to build technical skills and offer varied opportunities to students in secondary education. This system not only facilitates a quicker transition between schooling and employment, but also serves to reduce the wasting of student time and government resources through a student having to perform sub-optimally, or fail in academic education before embarking on a vocational qualification, and the preparation of students for tertiary education when only a sub-set of graduates enter that sector. By offering combined vocational and academic educational pathways, governments should consider: (i) modernizing vocational programs to more effectively target the development of skills demanded by growth sectors of the economy; (ii) integrating vocational education into the general education system so that vocational graduates are able to continue professional studies at the tertiary level; and (iii) maintaining a strong focus on the development of 21st century skills, including the development of rigorous academic skills in the vocational pathway.

The current structure of secondary education in Botswana and Lesotho does not provide students with sufficient opportunities to develop technical and vocational skills. All three countries have different structures for secondary education. Zambia recently introduced a vocational and academic educational track in junior and senior secondary schools. Botswana and Lesotho currently have only an academic track for junior secondary, and a comprehensive track for senior secondary education. The comprehensive senior secondary curriculum includes some mandatory vocational courses such as wood work and home economics, but these are not generally relevant for the contemporary labor market and the skills are not certified.

The current one-size-fits-all structure of secondary education in Botswana and Lesotho no longer serves the purpose for which it was established. One-size-fits-all systems of secondary education were developed in a context in which secondary education was an elite enterprise designed to prepare graduates for university education, and work in the public sector. These forms of secondary educations are poorly aligned with the contemporary economy and society for the following four reasons:

i. *The main purpose of senior secondary education has been the academic preparation of students to*

pursue tertiary education, regardless of their capacity or willingness. The reality is that only a minority of secondary graduates continue to tertiary education. Gross enrollment rates of secondary education in Botswana, Lesotho, and Zambia are 86 percent, 53 percent, and 44 percent, respectively. Poor academic performance, financial constraints and limited space at tertiary institutions, significantly constrain the transition of secondary graduates to tertiary education. Tertiary gross enrollment rates in Botswana, Lesotho, and Zambia are 27 percent, 10 percent and 4 percent, respectively. Therefore, at a maximum (Botswana), one in four secondary education graduates will continue to tertiary studies, and for more than three-quarters of students, secondary education will be their highest level of educational attainment before transitioning to the job-market. The provision of vocational skills as part of secondary school to students exiting the education system would assist students as they transition from school to employment.

ii. *The contemporary economy demands higher and broader competencies, and less factual knowledge*. Globally, countries are converging towards a common understanding that secondary education must offer breadth and variation in terms of skills acquisition and learning experience to more effectively address economic need (Cambridge 2015). Due to the mega-trends discussed in Box 3, a larger share of occupations now requires at least secondary education, including a range of service sector occupations and trades such as mechanics and technicians.

iii. *The varied interests and prior learning of large cohorts entering senior secondary education makes the achievement of one set of common learning standards difficult to achieve*. Some students have lost interest, or have not acquired the necessary foundational competencies necessary to effectively understand advanced courses. Students from comparatively wealthy backgrounds, who often attend better schools, will differ tremendously from less fortunate and ill prepared students. This is reflected, in part, by stagnating (Zambia) and declining (Botswana) examination pass rates for academic competencies in secondary education over the past ten years. Poor learning achievement is not representative of student failure, but more accurately represents systemic failure. It is important that the system recognizes that students are different, have different interests, and learn in different ways. Therefore, the structure needs to offer flexibility to become more inclusive through the accommodation of the varied needs of different learners.

iv. *An enlarged secondary education for all needs to take into account gender differences to be inclusive*, see Box 11.

There is a growing consensus across Botswana, Lesotho, and Zambia on the need to change the structure of secondary education. In all three countries, sector plans and vision statements include the need to further develop the competencies of learners in secondary education, and expand the conceptualization of secondary education beyond a close focus on knowledge. Moreover, all three countries plan to expand their systems of secondary education to accommodate growing cohorts of youth. As such, these countries are part of a broader regional initiative to fundamentally address curricula and structure change in the Southern Africa Region. Most countries have realized that secondary education cannot be limited to a set of classic subjects. Like other regions, Southern Africa is trying to address this challenge by, for example, introducing and developing more competency-based curricula for secondary schools.

The structural of secondary education systems in the three studied countries has institutionalized several shortcomings in the formal secondary education system, while concurrently weakening paths for vocational training.

Poor integration of vocational training programs into secondary education has led to substantial system inefficiencies and waste. By limiting the learners' choices in secondary education, the current system wastes crucial years of learning for young people, leading to less productive and prosperous working lives, and sub-optimal national economic outcomes. In Botswana, for example, students have to 'fail' (not pass) Form 5 (equivalent to Grade 12) before they are allowed to enter formal or semi-formal (often with unrecognized qualifications) TVET programs. These programs return the student to the equivalent of Junior or Senior secondary education

Box 11. A Gender Lens on Instruction, Curriculum, and Structure

The failure of a one-size-fits-all approach to secondary education equally applies to gender. There are at least two outcomes where there are important gender differences:

i. **Boys are under-represented in secondary education in Botswana and Lesotho.** In Botswana and Lesotho in 2015, girls' enrollment in secondary education exceeded enrollment of boys by eight and 15 percent, respectively. In Zambia, girls' enrollment is 5 percent lower than that of boys, but the gap is closing. As in the rest of the world, the number of girls in secondary education in Zambia is also likely to exceed that of boys in due time. Interviews with teachers and head teachers in the three countries suggest that the instruction methods and school culture do not allow for inclusion of boys with lots of energy. Therefore, some boys disconnect in class, can become distractions for others' learning, learn little, stay away, and do not complete primary or secondary school.

ii. **Girls are more likely to drop out more than boys due to early marriage and teen pregnancies.** In Zambia in 2015, girls' dropout rate for secondary education was almost four times higher than boys. The main reason is early marriage and teen pregnancy. In Botswana in 2012, a girl was 40 percent more likely to drop out. The difference is uniquely explained by pregnancy, which is the biggest factor for female drop out and accounts for 45 percent of drop out. The instruction methods, perhaps curricula, as well as school structure, culture, and rules need to reflect that a one-size-all school cannot accommodate satisfactorily the range of individual differences. It is important that instruction, school rules, and culture allow for the two important gender differences without leading to such large under-representation of boys and high drop out rates among girls.

For more see World Bank (2015) "Adolescent Girls in Zambia" and World Bank (2016) "Education Sector Public Expenditure Tracking and Service Delivery Survey in Zambia."

levels, effectively deeming a sub-set of their previous education irrelevant (Kuiper 2015; Kuiper 2017).

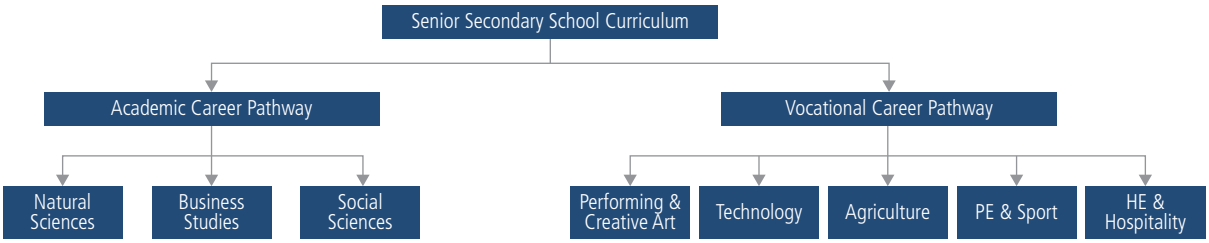
The poor integration of TVET into secondary systems of education results in low levels enrollment in these programs. Botswana, Lesotho, and Zambia, all offer vocational training programs for school leavers of secondary education. However, these forms of formal or informal TVET are outside of traditional secondary schools and do not lead to secondary education diplomas. As a consequence, these educational paths are effectively terminal in the education system, and graduates are unable to progress further in the educational system. Enrollment in vocational tracks in secondary education in the countries under review is very low accounting for just eight and five percent of secondary school enrollment in Botswana and Lesotho, respectively, well below the average of 10 percent for East Asia, 15 percent for Latin America, and 25 percent for Europe and Central Asia. Figure 13 provides more detail on global and regional trends in this regard. Many vocational training programs in secondary schools and TVET institutions continue to provide training for skills unaligned with the needs of the contemporary job market, having been rendered obsolete or near obsolete due to technological advances. Box 12 provides an example of challenges of the TVET system in Lesotho.

Recommendations for reform of the structure of Secondary Education

The traditional structure of secondary education no longer serves the needs of the contemporary economy. Reform requires the development of multiple pathways for senior secondary education (in the case of Botswana and Lesotho) and strengthening of the new educational pathways (in the case of Zambia). If the education systems in the three countries under review had been

Figure 13

Zambia's multiple pathway model for senior secondary education



Source: Zambia Education Curriculum Framework, MoGE 2013.

reformed and capacitated to offer more diverse learning opportunities for youth in secondary education, a different outcome and impact could be imagined. The multiple-pathway approach suggests that, at the senior secondary education level, students are given opportunities to choose between academic and vocational pathways based on their career ambitions. The academic pathway will service the needs of those who plan to

Box 12. Lesotho TVET Key Issues

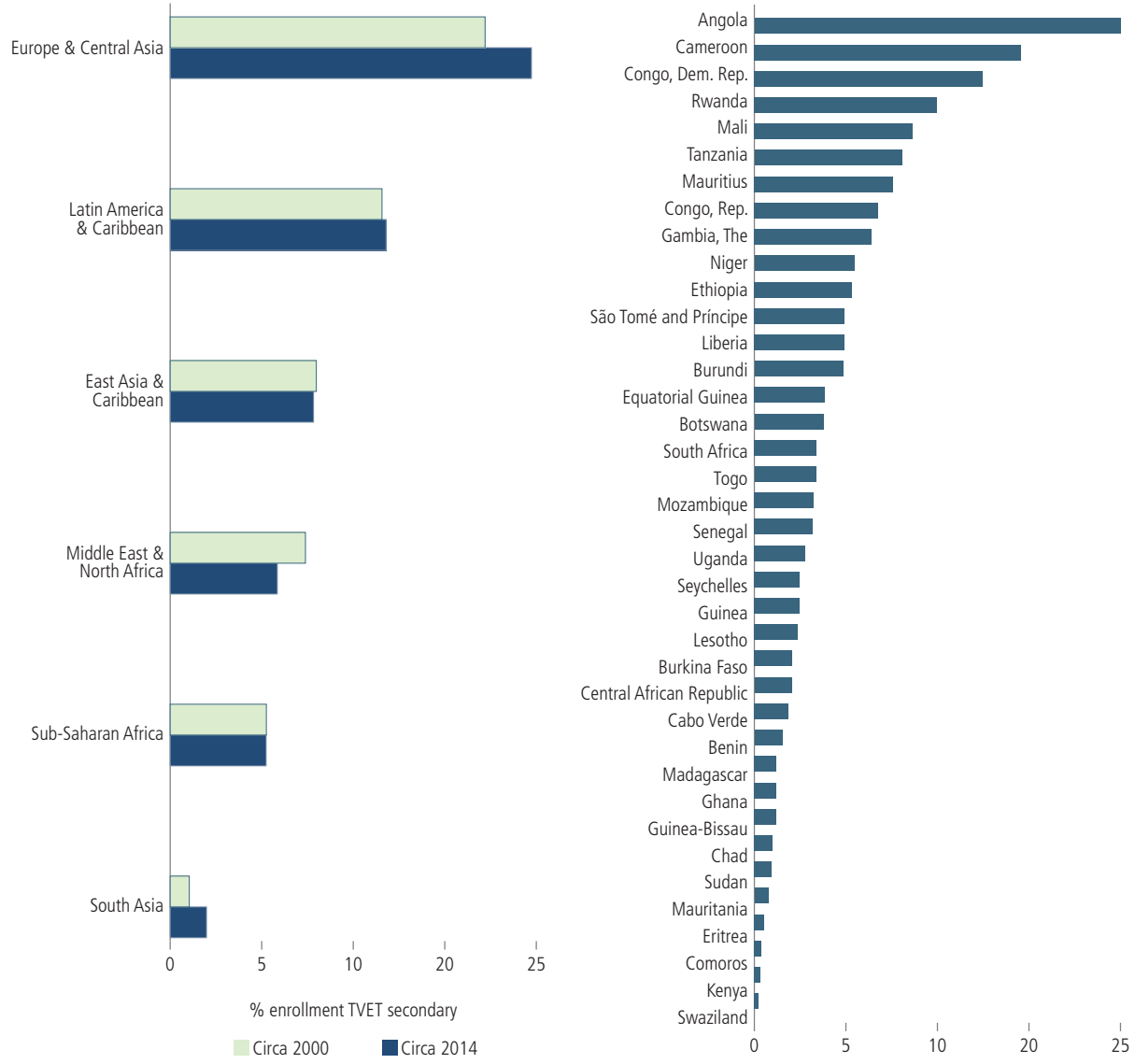
TVET institutions: there are 93 Secondary Technical schools which offer basic education in, among others, Metal and Woodwork, Home Economics, and Agriculture; 17 Skills Training Centres which offer Lower Basic Education to disadvantaged groups such as retrenched mineworkers and school leavers; as well as 29 Vocational and Technical Institutes aimed at junior- and senior-secondary school leavers, five of which offer mostly post-Cambridge Overseas Schooling Certificate programs, with some junior secondary courses, while others offer post standard-7 and post-junior secondary courses. These institutions are owned by multiple stakeholders: 46 percent by private providers, 24 percent by community and 22 percent by churches, and eight percent by the government. The total enrollment at registered TVET institutions was 4,223 students in 2014 with predominance of female (54 percent). TVET institutions are present only in seven districts but most of students are in Maseru (45 percent), Leribe (20 percent), and Mohale's Hoek (18 percent). There are 49 TVET programs across these institutions. The largest is for carpentry and joinery at 18.9 percent, followed by Bricklaying and Plastering at 15 percent and then Sewing and Tailoring at 13.2 percent.

Key challenges: (i) the mismatch between the skills demands of the Lesotho economy and the skills being produced by the TVET system is exacerbated by the absence of a structured participation of other government ministries and the private sector in the planning and governance of TVET. In addition, very limited data availability on key aspects makes deeper analysis and planning difficult. It is not possible to determine quantitatively specific skill demands per industry sector, disaggregated into job types for example; (ii) the demand for student places significantly exceeds institutional capacity and the National Qualification Framework remains a work in progress and does not yet provide meaningful learning pathways for TVET, (iii) the TVET systemic management structure assured by the TVD is under-resourced and is responsible for several functions making governance and oversight of the TVET sector compromised; (iv) total government funding for TVET is fragmented across multiple Ministries, with no structured mechanisms in place to coordinate or prioritize spending, and is too low to achieve desired outcomes. In addition, TVET institutions are underfunded to deliver skilled graduates.

Source: Butcher, N.

Figure 14

Enrollment in Secondary TVET by Regions and African Countries (%)



Source: World Bank (Forthcoming), based on UNESCO UIS database.

continue their education at the tertiary level. The vocational pathway will help those who plan to enter the labor force and find a job following the completion of their secondary education. Both pathways will provide students with competencies and skills they require for their career. The respective curriculum will consist of two components: one that provides foundational knowledge, and one that provides either further academic studies to meet the requirements for entry to tertiary education (in the case of the academic career pathway) or vocational training to qualify a graduate for entry to a particular occupation or profession. Both pathways will share a set of common core curriculum centered on the provision of the foundational knowledge and cognitive/non-cognitive skills demanded by the labor market. However, multiple educational pathways can also be introduced too early

in an education system. The structure in most countries, following the consensus of the education community, does not offer vocational tracks for students enrolled in junior secondary education. This sub-cycle of the education system should focus on providing every child/youth a solid base of foundational knowledge for their future growth and development. Then, at the senior secondary level, multiple educational pathways that include options with vocational education should be offered to students.

The successful implementation of multiple pathways for senior secondary education requires political will and corresponding changes in curriculum, pedagogy, practice, and assessment. All three countries under review are considering the concept of multiple pathways as detailed in the country reports attached to this report. For Botswana and Lesotho, it is critical to finalize their draft multiple pathway models, and a focused effort should target the key elements of multiple pathways such as the balance between core and elective subjects, assessment requirements, alignment with the existing qualification frameworks, etc. It is equally important to ensure that all stakeholders to the system, including the Qualifications Authority, the Examination Council, the TVET Authority, and TVET Institutions, buy in to proposed reforms. Zambia should focus on scaling-up its TVET track in senior secondary education as an integral component of initiatives to improve access to secondary education and skills development for young people. Because practical skills are in high demand in today's job market, the incorporation of opportunities for internships or apprenticeships in TVET programs should be further developed. Zambia has launched a new initiative (with a limited number of pilot schools) wherein students can opt to be examined in their TVET subjects, and then obtain a formal Skills Certification via tests administered in addition to their traditional school certificate. This testing includes site visits to all pilot schools and the testing of individual students (including practical skills) by the national TVET authority (TVETA) which has long-standing expertise in performing competency-based trade-testing.

There is an urgent need to modernize TVET, including the updating of TVET subjects to more effectively align them with labor market needs, employment demands, and industry standards. There is a contingent critical need to strengthen the link between government initiated stimulus and support for sectors of the economy and relevant and responsive curriculum design, incentives for apprenticeships, and partnerships between TVET providers and industry.

Importantly, to ensure the successful introduction of multiple pathways in senior secondary education, public campaigns must address the poor public perception of TVET in all three countries. TVET-related study is generally considered to be an option limited to academically weak students in all three countries. Young people, like their parents and teachers, hold strong beliefs that they should aim for white-collar jobs premised on academic qualifications (even when statistics show that only 10 to 15 percent of youth obtain the qualifications required to access such jobs). A public campaign using evidence on labor market demand and outcomes should be carried out to address public misperception regarding TVET and related job prospects.

Main Findings and Recommendations

5

Education remains a sound investment for governments and individuals. However, a problem has arisen: 450,000 secondary school graduates in Botswana, Lesotho, and Zambia are currently unemployed or economically inactive. A key reason articulated by employers, is that contemporary forms of secondary education do not sufficiently prepare graduates of secondary education with the 21st century skills (cognitive and socio-emotional) and vocational skills demanded in a 21st century economy.

- **The report calls for a reform process of instruction, curriculum, assessment, and structure of secondary education. It could be a national education movement led by teachers and principals to more effectively develop entrepreneurial graduates who think critically, proactively solve problems, work in teams, and demonstrate strong reading, writing, and math skills**. This could be supported by investments and policies that train teachers in student-centric teaching that develops these 21st century skills, as well as an introduction of school-based assessments to complement national exams.

The findings from classroom observations indicate that instruction in the classroom is teacher centric, with little evidence of student collaborative and active learning. The general absence of group work and collaborative learning undermines the development of skills associated with teamwork. Similarly, there was little evidence of the use of problem- and project-based assignments. It is of little surprise then that the graduates reach the labor market with few skills (and experience) related to group work, pro-active problem-identification and problem-solution, entrepreneurship and self-management, and communication.

- **We recommend that governments consider working with teachers and school directors to initiate a national debate on teaching style, followed by a teacher in-service training program to improve instructional practice and encourage more active, collaborative, and exploratory learning on the part of students.** In particular:
  - At least 70 percent of classroom time should be used for student-student discussions and other active student learning activities; and keep teacher talk to no more than five minutes.
  - The role of the teacher must change to be a positive learning mentor and not dispensing information or assuming authority.
  - Provide more coaching to teachers through classroom observations by supervisors and peers. Encourage teacher-to-teacher collaboration to jointly elaborate lesson plans and collegial discussion and feedback on teaching excellence.
  - Change the layout of classrooms to facilitate group work and invest as funding permits in electricity and computer-assisted learning.

Our analysis of the curricula and assessment of student learning indicates a focus on the acquisition of traditional foundational skills such as reading, writing and math, while an emphasis on the development of thinking skills, problem solving, teamwork, initiative/entrepreneurship, self-management, self-guided learning, and technology are secondary learning objectives, or are entirely missing. We find that all countries have made substantial progress in preparing a competency-based curriculum, in particular Botswana. However, graduates in all three countries are almost exclusively tested through a written national

assessment of standard examinable knowledge. This form of assessment incentivizes teachers and students to reduce classroom activities to rote learning of standard examinable knowledge.

- **We recommend all the countries accelerate the implementation of competency-based curriculum that fully specify 21st century skills as learning objectives, including self-management, entrepreneurship, team-work and problem solving. In turn, the curriculum should de-emphasize rote memorization of knowledge.**
  - Project and group learning should be a theme cutting across subjects.
  - Rethink the combination and weight of subjects to focus on sufficient time for core subjects and review relevance of each subject for today's world and for the future.
  - Implement a national orientation program of curriculum reform with substantial parental and student awareness as well as teacher training to avoid a drop in student learning and pass rates.
- **We recommend that the countries complement the national written exams with an element of school-based assessments of skills and competencies**. Instruction, curriculum, and assessment must all be aligned and focused on the development and acquisition of 21st century skills. If the assessments are not changed, the students and teacher are unlikely to focus on these broader 21st century skills. Notably:
  - Project and group-based assessments should be part of the school based assessments. Grades of such assessments should count towards graduation.
  - Pilot school-based assessment, which could include classroom oral communication and participation as well as presentation, planning, and team-skills. Substantial teacher training and parental information is important to understand the need for a shift from high-stakes written exams of knowledge and be consistent and fair evaluation.

Regarding the structure of secondary education, we find that Botswana and Lesotho offer a one-size-fits-all model of secondary education with a strong focus on the development of academic skills and preparation for university education, while Zambia recently has piloted a new pathway in secondary education that introduces a vocational qualification. In light of the fact that only a small percentage of secondary graduates in these countries typically proceed to university education, the emphasis on academic skills in secondary education is poorly aligned with the needs of the majority of students and the economy. The majority of students require skills and work experience to more effectively facilitate employment.

- **This report strongly supports the education strategies of the governments of Botswana, Lesotho, and Zambia to introduce or scale-up the combined vocational and academic pathway in secondary education.** We recommend that a combined pathway provide a rigorous academic foundation to facilitate tertiary studies, if the student so desires, while concurrently developing certified technical skills and presenting opportunities for students to accrue job training through internships. Systemic reforms to secondary education should be implemented in tandem with investments in vocational and technical education, including the modernization of outdated programs, such as woodwork, and the introduction of new programs aligned with growth sectors of the economy, such as ICT and tourism.

The following pages tailor these policy recommendations to the context of each country that has taken part in the study (Botswana, Lesotho, and Zambia).

Botswana specific recommendations

Launch a large-scale in-service teacher training and support program to make teaching student-centric. *The following recommendations can be considered: (i) Substantially revive the in-service teacher support program as part of the implementation of a competency-based curriculum. It appears that the current program, INSET, is not sufficiently coordinated, funded, and managed; (ii) Work with school inspectors, regional offices and school principals to conduct classroom observations using a standardized protocol aligned to the training and curriculum, with constructive feedback to the teachers and reporting of findings. The training could also be informed by analytical*

reports from the Botswana Examinations Council on shortcomings among learners observed in the examinations; (iii) Assign a reform-responsible staff in each school to guide teachers, parents, and students in the changes, thus creating school-based change-agents; (iv) Fund school-led projects to transform teaching to be competency-based and student centric, possibly through a competitive fund available to school proposals. Schools could be encouraged to form teacher research groups or experiment with using new teaching approaches aimed at particular challenges, for example lower learning among boys. This would also be a step towards increased decentralization and school autonomy foreseen in the Education and Training Strategic Sector Plan; (v) coordinate with pre-service education through the University of Botswana which is the leading institution educating teacher trainers and setting the pre-service teacher training curriculum.

Substantially accelerate the preparation, approval and implementation of the competency-based curriculum, and include school-based elements into the assessments. *Botswana is on the right way by the draft National Curriculum Assessment Framework and the Sector Plan. However, progress is slow. The reform of the curriculum of senior secondary education should include: (i) an increase in the share of instructional hours devoted to core subjects (English, Sestwana, Math, and Science) and an reduction of the share of less relevant subjects, such as wood and metal work; (ii) a phasing-in of the new curriculum, possibly by subjects with core-subjects being implemented first; (iii) an increase in contact hours possibly through a reduction in the use of monthly or bi-monthly school-level mock exams whether the students are drilled in examinable knowledge; (iv) an investment of substantial funding in communicating to the general public and discussing with teachers and education officials the goals of the competency-curriculum to lay the foundation for a mindset change towards competencies, not passive reproduction of knowledge. Further, an Assessment Framework should be produced to guide the new forms of assessments that will need to be implemented to support the development of competencies. This requires coordination between the Ministry of Basic Education (Department of Curriculum Development and Evaluation) and the Botswana Examinations Council. International technical assistance could also be considered.*

Introducing the planned professional education pathway in senior secondary education. *Thus, the school system* would offer an option between academically oriented senior secondary stream and a professional labor market oriented senior secondary stream. Both pathways should lead to a qualification that is accepted for further studies at the tertiary level. For this to rapidly take place, the government could: (i) develop the qualification, competencies, and assessment framework for the new combined academic and vocational pathway; (ii) undertake labor market analysis to propose concrete professions in expanding sectors, such as tourism, water and energy and livestock; and maintain strong linkages with the private employers for curriculum development and internships. The professional partners would provide learners with real-life working experience through internships. The Human Resource Development Council could assist in this analysis and coordination; (iii) work closely with the Ministry of Labor and Skills Development and the Ministry of Tertiary Education given their role in vocational education; (iv) invest in workshop instruction and practical learning material to ensure quality vocational education of the new professional qualification which is critical to overcome a stigma of vocational education. The design of the model of the professional/technical senior secondary education pathway should have both academic credits that lead to a similar qualification as the comprehensive senior secondary (BGCSE) and have technical credits leading to TVET qualifications such as the trade test A or the BTEP foundation qualification. This would seek the dual purpose of linking up to existing qualifications and assessments thus integration into the NQF and have progression in the technical post-secondary education. For this pathway to be successfully implemented, MoBE should consider carrying out minor rehabilitation of classrooms, upgrading labs to the new professional learning areas—including procuring learning equipment and materials needed.

Lesotho specific recommendations

Strengthen pedagogy through effective in-service teacher training. Lesotho has developed and has started the implementation of its curriculum and assessment policy. The reform of curriculum and assessment at primary

education is completed and the country is phasing out the end of the primary exam, which has been replaced by school based continuous assessment. The reform of the curriculum and assessment at secondary is being piloted for 2017 for grade 8 and the rollout is expected to be completed in 2020. Primary teachers and Grade 8 secondary teachers have been trained on the new curriculum and assessment. One shot of teacher training is not sufficient to improve teacher content knowledge and classroom practices. The country is now experimenting a new approach of teaching mathematics and science using the Progressive Mathematics Initiatives and the Progressive Science Initiative (PMI-PSI). Teachers are trained three times a year during school breaks not only on subject content as it is taught to students but also on pedagogy focusing on 21st century skills. The classroom observations showed that classroom practices do not foster 21st century skills and employability skills in general for the three countries. However, for Lesotho, the situation is more challenging as many schools are still not equipped with basic infrastructure such as electricity making generalization of new technology difficult. As the country moves forward with the development of the Lesotho model of teaching and learning mathematics and science to be implemented in 2021, it is important that MoET brainstorms on the sustainable approach of providing electricity to schools. In addition, regular teacher training in pedagogy can be integrated into the training on the new curriculum and assessment. This requires changes at classroom level starting now to ensure that students are equipped with the in-demand employability skills.

While reforming the structure of secondary education and the TVET system, MoET has to make sure that all students complete basic education before going to a specialized system. Without strong basic knowledge and skills that should be gained from basic education, youth are not well equipped to efficiently embrace more specialized streams. This means that focus should be on core curriculum at junior secondary and elective curriculum should be introduced as first steps to more technical and/or vocational pathways. It also means that the core curriculum of TVET at senior secondary level (including mathematics, science, and languages) should be strengthened and instruction reforms should be also implemented in TVET. In doing so, TVET will be more relevant, will effectively contribute to meeting the key socio-economic needs of the country, and will not be considered as second chance system for failing students. Additional key recommendations on TVET are provided in Box 13.

Box 13. Lesotho TVET Recommendations

Key recommendations: a TVET system that contributes effectively to meeting the key socio-economic needs of the country is best tackled by contemplating a broad-based structural reform of TVET. This includes: (i) Introduction of specialized schools that focus on key economic sectors such as Mining and Construction, Agriculture, Tourism and Hospitality etc. Creation of these specialized schools could be achieved through a combination of overhauling existing institutions and building new institutes. They should (a) be governed through a Council structure that constitutes a tripartite alliance, with representation from the institution's educational staff, government Ministries (MoET and other ministries active in the relevant economic sector), and representatives of the industry's business association, (b) have appropriate autonomy to give them flexibility in terms of its recruitment and remuneration policies (thereby enabling it to attract and retain skilled instructors), to negotiate and manage co-investments with the private sector, and to charge fees to students where appropriate; (ii) Overhaul of the current governance structures of the TVET sector including (a) establishment of the Lesotho Skills Authority (LSA) and the National Training Fund, which are already described in the TVET draft policy, (b) restructuring of TVD to function as the operational arm of the LSA and assuring the quality of TVET institutions, programs and program delivery, leaving the driving curriculum/program design and development for institutes; and (iii) overhaul of current funding structures.

Source: Butcher, N (2017).

Identify sustainable strategies to improve retention and to expand access to secondary education for students from the poorest families and those living in rural and mountainous areas. Compared with other countries such as Botswana and other lower and upper middle-income countries, Lesotho still has a long way to go to achieve decent completion rates and improve equity at the secondary level. The country is starting to pilot school based management (SBM) systems including school improvement plans and subsidies to schools to improve student retention. This experience will certainly help MoET establish a good SBM mechanism at the national level in the future. In addition to that, the current secondary education financing mechanism is not viable for the poorest and the most vulnerable. This includes the school fees, book rental policy, examination fee versus the bursary policy which focuses mostly on orphanage status rather than actual socio-economic status of the students. Expanding secondary education in rural areas with extremely limited access might be expensive and challenging due to high unit cost and low enrollment. To make it sustainable, the unit cost of classroom construction should be reduced, and use of well-trained multisubject teachers should be carefully analyzed.

Zambia specific recommendations

Making the curriculum more relevant to the labor market needs. Zambia developed and introduced its new curriculum in 2014. Although this new curriculum is more competency-based than the previous one, its focus is more on cognitive skills and less on technical/vocational and socio-emotional skills that 21st century skills also demand from both current and future generations. Create necessary modifications of the new curriculum to strengthen its relevance through further consultation with the industry.

Improving pedagogy to teach 21st century skills effectively. Classroom observations conducted under this study in Zambia reveals the persistence of the practice of the traditional teacher-centered, knowledge-passing-oriented instructional methods in classroom teaching. Research has shown such teaching is outdated and unable to provide students the 21st century skills demanded by the labor market. In order to teach students 21st century skills and move toward more student-centered teaching/learning in classrooms, pre- and in-service teacher preparation and training need to be improved. While the effort in helping teachers' mastery of subject content knowledge needs to be continued, the emphasis should be put more on modernizing and upgrading their pedagogical skills based on the requirements of 21st century skills.

Scaling up the multiple pathways for senior secondary education. Zambia is currently piloting a new arrangement at senior secondary education with the multiple pathway concept. The initial results of the pilot are positive. Given the relative small size of the tertiary education and the need for further diversifying the economy as outlined in the new 7th National Development Plan, the multiple pathway approach will equip secondary education graduates with practical skills, especially technical and vocational skills, in addition to the traditionally-expected academic skills, to make them job-ready for the labor market.

Increasing access to secondary education, especially in rural areas and for girls. Zambia has large out-of-school population, particularly among the senior secondary education age group, due to the severe shortage of secondary schools in the country. Adolescent girls' pregnancy and early marriage continues to be a societal issue. The Government of Zambia, with the support of development partners, has been making effort and progress in the area of accessing secondary education by constructing new secondary schools and classrooms, providing facilities to meet girls' special needs and incentives to support their completion of secondary education through cash-transfer and other programs. More investment is needed to provide youth more opportunities for secondary education, as labor market studies in the country shows that those who completed secondary education are more likely to be employed.

Focusing more on learning outcome through more analysis, communication, and action plans on learning outcomes. There could be national-, provincial-, and school-level plans built upon analysis of past learning outcomes and aiming at explicit measurable improvements in learning outcomes (foundational skills as well as the whole range of 21st century skills).

References

Almeida, R., N. Amaral, de Felicio, F. 2016. *Assessing Advances and Challenges in Technical Education in Brazil*. World Bank Study. Washington, DC: World Bank.: World Bank.

Bethel 2016. South Africa Portfolio Committee on Basic Education.

Blom, A; H. Saeki. 2011. Employability and Skill Set of Newly Graduated Engineers in India. Policy Research working paper; no. WPS 5640. World Bank.

Bloom, B. S.*; M. D. Engelhart, E. J Furst, W. H. Hill, D. R.* Krathwohl. *1956. Taxonomy of educational objectives: The classification of educational goals. Handbook I: Cognitive domain. New York: David McKay Company.*

Botswana. 2009. *Income and Expenditure Survey*.

Bruni, L. M.; J. Rigolini, S. Troiano. 2016. Forever Young? Social Policies for a Changing Population in Southern Africa. World Bank, Washington, DC.

Butcher, N. 2017. *Technical and Vocational Education and Training in Lesotho: A Policy Note (background paper for this report).*

Conn, K. M. 2017. Identifying Effective Education Interventions in Sub-Saharan Africa: A Meta-Analysis of Impact Evaluations. Review of Educational Research, 1–36.

Education & Literacy Data. 2008–2015. In *UNESCO Institute for Statistics*.

Francis, C., C. Ngosa, and E. Sara. 2013. *Labor market transitions of young women and men in Zambia*. Geneva: International Labor Organization.

Government of Lesotho Ministry of Education and Training. 2016. Education Sector Plan 2016–2025 Draft.

Heckman and Katz. 2015. Labour Econ. 2012 Aug 1; 19(4): 451–464.

International Baccalaureate Organization. 2013. *What is an IB education?* United Kingdom, International Baccalaureate Organization.

International Labor Office. 2009. *Module 1: Basic concepts, roles and implementation process*.

International Labor Office. 2015. *Zambia SWTS country brief*.

Kuiper, J. 2015. Creating an Effective and Purposeful Curriculum. *Curriculum Handbook for Botswana Curriculum Developers.*

Kuiper, J. 2017. *Reforming Botswana, Lesotho and Zambia's Secondary Education System: What structure, curriculum, and assessment develop job-readiness best?* (background paper for this report)

Lesotho. 2011. *Household and Employer Survey.*

Merotto, Dino. 2017. *Zambia Jobs Diagnostic: Analytics.* World Bank, Washington, DC: World Bank.

Ministry of Development Planning Bureau of Statistics. 2013. *2011 Lesotho Demographic Survey Analytical Report* (Vol. 1).

Ministry of Education, Science, Vocational Training, and Early Education. 2013. *Zambia Education Curriculum Framework 2013*. N.p.: The Curriculum Development Centre.

Naudeau, S., R. Hasan, A. Bakilana. 2015). *Adolescent Girls in Zambia: Introduction and Overview. Policy Brief Zambia*. World Bank, Washington, DC.: World Bank.

New Jersey Center for Teaching and Learning (NJCTL). 2017. *Evaluation of Secondary Education in Botswana, Lesotho, and Zambia: The Alignment of Curriculum, Assessment, and Instruction with 21st Century Skills*. (background paper for this report)

OECD. 2016. Education at a Glance 2016: OECD Indicators, OECD Publishing, Paris.

Popova, A.; D. Evans, V. Arancibia. 2016. *Training teachers on the job: what works and how to measure it.*

Policy Research working paper; no. WPS 7834; WDR 2018 background paper. Washington, D.C.: World Bank.

Republic of Zambia Central Statistical Office. 2016. *2015 Living Conditions Monitoring Survey Report*.

Republic of Zambia Ministry of General Education. 2016. *2015 Zambia Educational Statistical Bulletin*.

Statistics Botswana. 2012. *Education Statistics Report 2012*. Gaborone, Statistics Botswana, 2015.

World Bank. 2014. Employment Dynamics in Botswana: Assessing the jobs challenge based on labor market trends over the past decade. Washington, D.C.: World Bank.

World Bank. 2015. *Adolescent Girls in Zambia: Executive Summary*. Policy Brief: Zambia. World Bank, Washington, DC: World Bank.

World Bank. 2015. Botswana – Systematic Country Diagnostic. Washington, DC: World Bank.

World Bank. 2015. Lesotho – Systematic Country Diagnostic. Washington, DC: World Bank.

World Bank. 2015. *Secondary Vocational Education: International Experience*. World Bank, Washington, DC: World Bank.

World Bank. 2015. *South Africa Economic Update, August 2015: Jobs and South Africa's Changing Demographics*. South Africa economic update, issue no. 7. Washington, DC. World Bank.

World Bank. 2016. *Education Sector Public Expenditure Tracking and Service Delivery Survey in Zambia*. World Bank, Washington, DC: World Bank.

World Bank. 2016. *World Development Report 2016: Digital Dividends*. Washington, DC: World Bank.

World Bank. 2017. *Math and Science for Sub-Saharan Africa (MS4SSA) Conference & Training Program*.

World Bank. 2017. *Zambia – Systematic Country Diagnostic*. Washington, DC: World Bank.

World Bank. 2018. *World Development Report 2018: Learning to Realize Education's Promise*. Washington, DC: World Bank.

Xiaoyan, L. et al. 2015. *How Shanghai does it*. World Bank publication.

Zambia. 2010. *Income and Expenditure Survey*.

WORLD BANK GROUP
1818 H Street, NW
Washington, DC 20433