

Assessments for Minimum Proficiency Levels a and b (AMPL-ab)

INTERNATIONAL REPORT
January 2024



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Executive summary

Monitoring the extent to which education systems are meeting the United Nations' Sustainable Development Goal in Education (SDG 4) is essential to support the achievement of the associated targets. As part of SDG 4, indicator 4.1.1 aims to measure the "proportion of children and young people: (a) in grades 2/3; (b) at the end of primary; and (c) at the end of lower secondary achieving at least a Minimum Proficiency Level in (i) reading and (ii) mathematics, by sex." To assist education systems in monitoring progress towards indicator 4.1.1, the UNESCO Institute for Statistics (UIS) has coordinated efforts to establish common reading and mathematics metrics building on existing cross-national and national assessments. As a result of these efforts, Two important points of consensus have been reached: the definition of the Minimum Proficiency Levels (MPLs) at the three stages of schooling referred to in indicator 4.1.1. and comprehensive definitions of the reading and mathematics learning areas within the Global Proficiency Framework (GPF).

The main aim of this study – Assessments for Minimum Proficiency Levels 'a' and 'b' (AMPL-ab), is to measure and analyze the reading and mathematics proficiency of students at the end of lower primary (SDG indicator 4.1.1a) and at the end of primary school education (SDG indicator 4.1.1b). This will:

- produce baseline population estimates in reading and mathematics proficiency to enable participating countries to set informed targets for improvement
- facilitate reporting against SDG Indicators 4.1.1a and 4.1.1b
- assist with tracking learning progress over time
- complement AMPL-b tools that were developed in 2021 for the Monitoring the Impacts of COVID-19 on Learning Outcomes (MILO) study (UIS, 2022a).

Four countries participated in the AMPL-ab study: The Gambia (Grade 3), Kenya (Grade 6), Lesotho (Grade 7) and Zambia (Grade 4 & Grade 7). India (Grade 3 & Grade 5) also participated in this study, undertaking a pilot with a purposive sample that, by design, does not yield population estimates and not included in this report.

STUDY DESIGN

AMPL is designed to measure student proficiency in reading and mathematics, to determine progress towards SDG indicator 4.1.1a at the end of lower primary (AMPL-a) and SDG indicator 4.1.1b at the end of primary school education (AMPL-b). All countries participating in this study administered a version of AMPL-a, including Kenya, Lesotho and Zambia who administered AMPL-a alongside AMPL-b to their end of primary grade students (grades 6, 7 and 7, respectively). This is useful for education systems where it is expected that many students at the end of primary school education are not meeting Minimum Proficiency Level for the end of primary school, as it provides information on the extent to which students at these grades are meeting Minimum Proficiency Level for the end of *lower* primary school. The Gambia and Lesotho administered AMPL-a to their end of early primary grade students (grades 3 and 4, respectively).

To report progress towards SDG Indicators 4.1.1a and 4.1.1b the grade levels of each target population were considered: the Gambia (Grade 3) was reported against SDG indicator 4.1.1a; Kenya (Grade 6) and Lesotho (Grade 7) were reported against SDG indicator 4.1.1b, and Zambia was reported against SDG 4.1.1a for Grade 4 and against SDG 4.1.1b for Grade 7.

AMPL is a paper-based administration. In all participating countries, the assessments were administered in English. English is the official language of instruction for the populations associated with the end of primary school. For end of

lower primary, the population of interest was defined as students enrolled in schools where the language of instruction is English.

The AMPL-a listening comprehension tasks were provided in high quality audio files recorded with voice actors using standard British English. All participating countries chose to adapt these, re-recording them in local English accents.

Important contextual information was collected via questionnaires from students and school leaders to analyse relationships between student and school contexts and learner proficiency.

ASSESSMENT RESULTS

The AMPL results relate to the proportion of students meeting or exceeding Minimum Proficiency Levels at the end of *lower* primary school (MPLa) and/or Minimum Proficiency Levels at the end of primary school (MPLb), both for the respective target population and disaggregated by gender.

Student proficiency in mathematics

At the end of lower primary school, 25.8% of students in The Gambia (Grade 3) and 14.4% of students in Zambia (Grade 4) achieved the associated MPLa in mathematics. A small proportion of students at the end of lower primary also achieved the mathematics MPLb associated with the end of primary school – noting that this population is not reported against the indicator for the end of primary school education.

At the end of primary school, 36.9% of students in Kenya (Grade 6), 19.7% of students in Lesotho (Grade 7), and 16% of students in Zambia (Grade 7), achieved the associated MPLb for mathematics. A majority of students at the end of primary school also achieved the MPLa associated with the end of lower primary school in mathematics.

Girls and boys demonstrated similar levels of proficiency in mathematics, except for Lesotho (Grade 7), where more girls (21.8%) than boys (17.1%) achieved MPLb at the end of primary school education.

Student proficiency in reading

In The Gambia (Grade 3) and Zambia (Grade 4), 21.5% and 12.7% of students, respectively, achieved the associated reading MPLa for the end of lower primary school. A small proportion of students at the end of lower primary school also achieved the reading MPLb for the end of primary school – noting that this population is not reported against the indicator for the end of primary school education.

At the end of primary school, 25.5% of Grade 6 students in Kenya, 10.8% of Grade 7 students in Lesotho, and 9.7% of Grade 7 students in Zambia, achieved the associated MPLb for reading. A majority of students at the end of primary school also achieved the MPLa associated with the end of lower primary school education in reading.

At the end of lower primary school more girls than boys achieved the associated MPLa in The Gambia (23.1% and 19.6%). In Zambia there was no statistically significant difference between girls and boys for MPLa at the end of lower primary school. At the end of primary school, more girls than boys achieved the associated MPLb in Lesotho (12% girls and 9.4% boys) and in Zambia (11% girls and 8.3% boys). There was no statistically significant difference between girls and boys for the end of primary MPLb in Kenya.

CONTEXTUALISING THE RESULTS

The AMPL results can be better understood by analysing the student and school contexts that are associated with student learning. Key insights from this study relating to student contexts include:

- The mean age of students at the same stage of schooling markedly differed between countries.
- In all the countries, except in Kenya, slightly more than half of students in each target population were girls.
- For all countries, between 94% and 96% of students indicated that the main language they speak at home is not English (the language of instruction in the target populations and the language of assessment).

- Students who indicated to receive a lot of family support had higher proficiency in mathematics and reading, on average, than students who indicated to receive little family support.
- Students from families with higher wealth had higher proficiency in mathematics and reading, on average, than students from families with lower wealth.
- Students whose parents can read and write achieved higher proficiency in mathematics and reading, on average, than students whose parents cannot read or write.
- Students who have a parent who completed a university degree, on average, achieved higher proficiency in mathematics and reading than students who do not have a parent that completed university.
- Students who have a more nutritious diet have higher proficiency in reading and mathematics, on average, than other students.
- The proportion of students meeting or exceeding the minimum proficiency levels associated with their stage of schooling was low and differed between countries and learning areas.
- More students were meeting or exceeding minimum proficiency levels in mathematics than in reading at the end of lower primary and the end of primary schooling.
- Girls and boys demonstrated similar levels of proficiency in mathematics, but girls generally outperformed boys in reading.
- There was a broad spread of proficiency amongst students within grades.
- Students at the end of primary school achieve higher levels of proficiency in mathematics and reading than students at the end of lower primary school.

Key insights related to school contexts include:

- The populations of the participating countries were much more likely to attend school in rural areas, with students most likely to attend schools located in communities with fewer than 3,000 people.
- The majority of students attended schools where school leaders indicated that additional support in reading is provided for students whose heritage language is not English.

Summary of key findings

This section presents the headline key findings of the AMPL-ab study. These findings are unpacked in the Key findings section.

CONCLUSION

By measuring the reading and mathematics proficiency of students, AMPL enables countries to report on the achievement of the MPLs referred to in SDG indicator 4.1.1a and b. The development of AMPL-a is a significant milestone for education monitoring. A particular innovation is the measurement of listening comprehension and decoding skills using pre-recorded audio stimuli, which along with other elements of MPLa, can now be reported against SDG 4.1.1a. This study has shown that AMPL-ab provides a robust means to measure the proportion of students who meet SDG 4.1.1 'a' and 'b'. Further insights for policy and practice can be gained by examining the results alongside Minimum Proficiency Levels: Described, unpacked and illustrated (ACER,2022).

Introduction

This report describes the Assessments for Minimum Proficiency Levels ‘a’ and ‘b’ project (AMPL-ab), and reports on the international results. Five countries participated in this study: The Gambia, India, Kenya, Lesotho and Zambia, as seen in **Figure 1**. This report covers the results for the 4 African countries. India only participated in this study as a pilot – with a purposive sample that, by design, does not yield population estimates and results are therefore not included in this report.

OUTLINE OF THE REPORT

Following a description of the study design, the mathematics and reading proficiency of students is presented. The focus is thereby on the proportion of students reaching or exceeding the relevant Minimum Proficiency Level in reading and mathematics, overall for the target population in each country, as well as disaggregated by gender.

The next section describes student characteristics and contexts, as well as the school learning environment in each country. These data were collected through questionnaires from students and school leaders. Associations between contextual data and student proficiency are also presented.

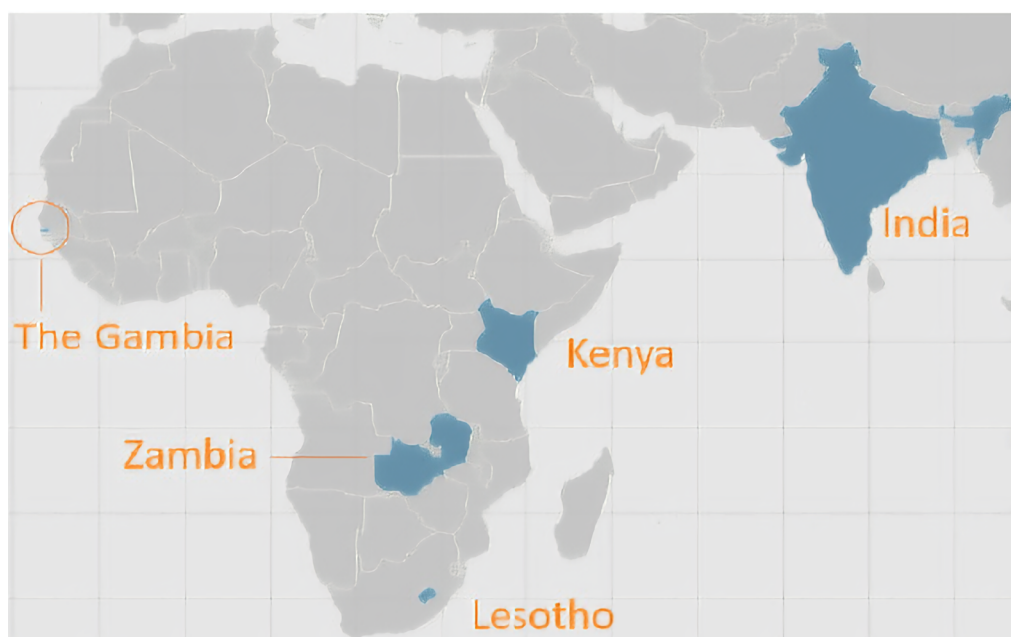
The individual country summaries focus on gender and the distribution of student proficiency.

The discussion of results derives key findings based on the student proficiency results and associated contexts.

The report concludes by discussing how this study has contributed to enhancing the capacity of countries to monitor progress towards achieving SDG indicator 4.1.1.

The six appendices provide more detail and data related to results and methods.

FIGURE 1: Map of countries participating in AMPL-ab



Study design

This section describes the study design for AMPL-ab. This includes the: assessment blueprint, test design, assessment instruments, contextual framework, country-specific assessment design, sample design and outcomes, and the data and psychometric analysis. It also includes a detailed description of the decoding and listening comprehension domains, as these are new to the AMPL suite of instruments.

In all participating countries AMPL was administered in English.

ASSESSMENT BLUEPRINT

The assessment blueprint describes the mathematics and reading learning areas assessed with AMPL-a and AMPL-b. An outline of the domains is presented in [Table 1](#).

DECODING AND LISTENING COMPREHENSION DOMAINS

Targeting SDG indicator 4.1.1a, the AMPL-a reading assessments include decoding and listening comprehension items in addition to reading comprehension.

There are two simple listening comprehension texts, a story and a factual text, both approximately 70 words in length. The pre-recorded stimulus texts and items are audio-delivered. Students hear the story but do not see it. The multiple-choice items are read aloud and presented in the paper booklets where students select their answers.

Out of 10 decoding items, five are audio-delivered, where students hear a single word and select the matching word from some written words in the paper booklet. The other 5 decoding items are multiple choice and require completing a word with a missing

TABLE 1: Mathematics and reading domains for AMPL-a and AMPL-b

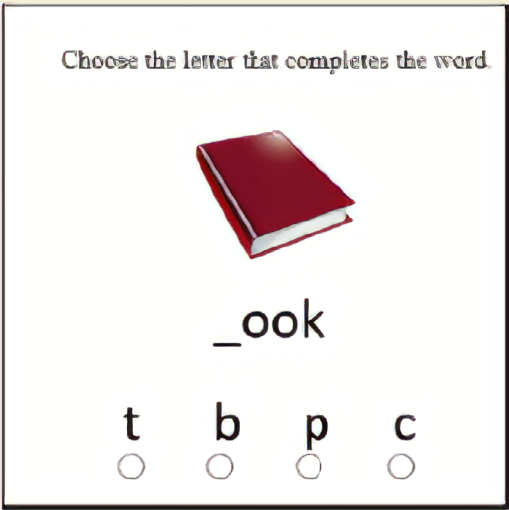
	MATHEMATICS	READING
AMPL-a	Number and Operations	Listening Comprehension
	Measurement, Geometry	Decoding
	Statistics, Probability & Algebra	Reading Comprehension
AMPL-b	Number and operations	Reading Comprehension
	Measurement	
	Geometry	
	Statistics and Probability	
	Algebra	

letter by identifying the first letter, the last letter or the middle vowel. Each word is illustrated, representing a common object.

An example of a Decoding item is provided in **Box 1**; more detail about decoding and listening comprehension items is provided in **Appendix B**, which discusses the relative difficulty of the decoding and listening comprehension items.

BOX 1: Example 1 of SDG 4.1.1a
Decoding comprehension item

This is an example of a decoding item used in AMPL-a, within the sub-construct – Identify symbol-sound/ fingerspelling and/or symbol-morpheme correspondences. Students see a familiar image. The written word is provided with one missing letter, or an adjacent pair of missing letters. Students have to select the correct letter(s) to fill the gap from one of 4 options.



TEST DESIGN

Countries administered one or both of 2 test designs.

AMPL-a test design

The AMPL-a design targets the end of lower primary MPLs in reading and mathematics corresponding to SDG indicator 4.1.1a. The clusters of items include:

- One cluster of 10 listening comprehension and 5 decoding items delivered via audio with students answering in their booklets
- One cluster of 25 reading comprehension items and 5 decoding items, paper-based
- One cluster of 30 mathematics items, paper-based.

There are 2 AMPL-a booklets, rotated across students. The listening comprehension/decoding cluster appears at the beginning of both booklets. Each booklet contains both the reading comprehension/decoding and mathematics clusters, but the ordering of the clusters is reversed across the 2 booklets to avoid ordering effects. The content of the 2 booklets – numbered Booklet 7 and 8 in the AMPL-ab test design, is summarised in **Table 2**.

AMPL-ab test design

The AMPL-ab design targets the end of lower primary MPLs as well as the end of primary MPLs in reading and mathematics corresponding to both SDG indicators 4.1.1a and 4.1.1b.

The AMPL-ab test design (see **Table 3**) consists of 4 booklets targeting MPLa and MPLb (Booklets 3, 4, 5, 6) and the 2 AMPL-a booklets described above (Booklets 7 and 8).

The audio-based cluster of 10 listening comprehension and 5 decoding items appears at the beginning of each AMPL-ab booklet. Booklets 3 and 4 rotate the AMPL-b reading comprehension and mathematics clusters. Booklets 5 and 6 rotate AMPL-a and AMPL-b reading comprehension and mathematics clusters. Booklets 7 and 8 are the same as in the AMPL-a design, rotating the AMPL-a

TABLE 2: AMPL-a: test design

BOOKLET	PART 1 AUDIO	PART 2	PART 3
AMPL-a Booklet 7	Listening comprehension 10 items	Mathematics 30 items	Reading comprehension 25 items
	Decoding 5 items		Decoding 5 items
AMPL-a Booklet 8	Listening comprehension 10 items	Reading comprehension 25 items	Mathematics 30 items
	Decoding 5 items	Decoding 5 items	

TABLE 3: AMPL-ab: test design

	PART 1 AUDIO	PART 2	PART 3
AMPL-ab Booklet 3	Listening comprehension(a) 10 items	Mathematics(b) 30 items	Reading comprehension(b) 32 items
	Decoding(a) 5 items		
AMPL-ab Booklet 4	Listening comprehension(a) 10 items	Reading comprehension(b) 32 items	Mathematics(b) 30 items
	Decoding(a) 5 items		
AMPL-ab Booklet 5	Listening comprehension(a) 10 items	Mathematics(a) 15 items	Reading comprehension(a) 15 items
	Decoding(a) 5 items	Mathematics(b) 15 items	Reading comprehension (b) 15 items
AMPL-ab Booklet 6	Listening comprehension(a) 10 items	Reading comprehension(a) 15 items	Mathematics(a) 15 items
	Decoding(a) 5 items	Reading(b) 15 items	Mathematics(b) 15 items
AMPL-a Booklet 7	Listening comprehension(a) 10 items	Mathematics(a) 30 items	Reading comprehension(a) 25 items
	Decoding(a) 5 items		Decoding(a) 5 items
AMPL-a Booklet 8	Listening comprehension(a) 10 items	Reading comprehension(a) 25 items	Mathematics(a) 30 items
	Decoding(a) 5 item	Decoding(a) 5 items	

reading comprehension/decoding clusters and the mathematics clusters.

CONTEXTUAL INSTRUMENTS

Contextual information was collected via paper-based questionnaires for students and school leaders. The purpose of the questionnaires is to gather important information for the interpretation and reporting of the relationships between contextual factors and student proficiency.

Student questionnaire

The student questionnaire was completed by the students undertaking the assessments. The student questionnaire collects data on 3 main themes: student characteristics, economic, cultural and social background and health. The indicators for these themes are presented in Table 4.

School questionnaire

The school questionnaire was completed by school leaders or their designate. The school questionnaire gathers information related to

5 main themes: characteristics of the school principal, school characteristics, school facilities and resources, teachers and students, and health. The indicators of these themes are presented in Table 5.

COUNTRY SPECIFIC STUDY DESIGNS

Countries participating in this study could opt between the 2 test designs of AMPL-a – targeting SDG indicator 4.1.1a at lower primary and AMPL-ab – targeting SDG indicators 4.1.1a and 4.1.1b at the end of primary. Beyond this, countries decided which grades were assessed, and the target grade to report against SDG indicator a or b.

In particular, countries gave consideration to the structure of their education system. In consultation with the UIS, each participating country made a judgement as to what grade was to represent ‘end of lower primary’ and ‘end of primary’ schooling within their context, for the purposes of reporting against SDG indicator 4.1.1.

TABLE 4: Student questionnaires themes and indicators

QUESTIONNAIRE	THEME	INDICATOR
Student questionnaire	Student characteristics	Gender
		Age
		Main language spoken at home
		Kindergarten or preschool attendance
		Household composition (number of people living at home)
	Economic, cultural, and social background	Parents Highest formal education
		Parents reading and writing skills
		Number of books in the home
		Household possessions
		Help with schoolwork
	Health	Nutrition
		Sanitation

Countries reporting against SDG 4.1.1b assessed students in their final (or in the case of Kenya, penultimate) grade of primary school (Grade 6 in Kenya, Grade 7 in Lesotho and in Zambia). For the countries that administered AMPL in lower primary, it was administered in Grade 3 in The Gambia and Grade 4 in Zambia.

In each grade assessed (except for The Gambia), the proportion of students achieving MPLa and the proportion of students achieving MPLb was identified. This provides a fuller picture of proficiency distribution, even though the focus may be on one MPL at a specific stage of schooling.

TABLE 5: School questionnaires themes and indicators

QUESTIONNAIRE	THEME	INDICATORS
School questionnaire	Characteristics of the school principal	Gender
		Age
		Years of service
		Qualifications of principal
		Job satisfaction
	School characteristics	School management (private/public)
		School location (urban/rural)
		School size (total enrolment of boys and girls and at target grade)
		Language of instruction
	School facilities and resources	School facilities
		Availability of textbooks
		Provision of additional support in reading
	Teachers and students	Number of teachers
		Teacher qualifications
		Professional development for teachers
		Student absence and truancy
	Health	Nutrition
		Sanitation

Table 6 refers to the grade assessed and the total number of years of primary school education available in each country, to contextualise the study design.

SAMPLE DESIGN AND OUTCOMES

To estimate the reading and mathematics proficiency of students in the target grades of each country, a nationally representative sample was drawn. Sampling students according to rigorous technical standards ensured that the outcomes of students selected to undertake AMPL-ab can be generalised to the population of students in those target grades across the whole country. For countries investigating Minimum Proficiency Levels at the end of lower primary (The Gambia and Zambia) the target populations were refined to students enrolled in schools where the language of instruction was English.

Samples were stratified, so that the sample more proportionally represents specific diversity categories within countries, these categories include:

- School type, sector, ownership or proprietor: e.g. private/public/religious
- School location: urban/regional
- Region: e.g. all the national counties or provinces
- School size: e.g. small and large schools

The aim of the AMPL-ab sample design was to provide complete coverage of the target population. However, a small number of exclusions at the school or student level were necessary. Students may have been excluded on the grounds of having functional disabilities, or insufficient language proficiency. Schools might be excluded if they exclusively cater for students who would be excluded, as well as on the grounds of:

- Accessibility: e.g. too difficult to reach
- Size: e.g. too small
- Non-standard curriculum: e.g. has a special curriculum

TABLE 6: Study design by country

PARTICIPATING COUNTRY	SDG INDICATOR	TARGET GRADE*	YEARS OF PRIMARY SCHOOL EDUCATION	TEST DESIGN	CONTEXTUAL INFORMATION
The Gambia	4.1.1(a)	3	6	AMPL-a booklets	AMPL-ab student and school questionnaires
Kenya	4.1.1(b)	6	6	AMPL-ab booklets	
Lesotho	4.1.1(b)	7	7	AMPL-ab booklets	
Zambia	4.1.1(a)	4	8	AMPL-a booklets	
	4.1.1(b)	7	8	AMPL-ab booklets	

The target grade is the grade that the assessment is undertaken and relates to the associated MPL for reporting. In the above table, grades 3 and 4 relate to MPLa, and grades 6 and 7 relate to MPLb.

The AMPL-ab involved a two-stage clustered sample design. At the first stage schools were sampled. At the second stage, an intact class of students from those schools was sampled. Where the class size exceeded a certain practical number, a sub-sample of students from the sampled intact class was selected. A minimum of 150 schools and 4000 students were required to participate in AMPL-ab in each population assessed. This requirement was based on technical standards 1.7. and 1.8, which can be found in the AMPL-ab Technical Standards document, which guided the data collection and data management activities (ACER, 2023c).

The sample outcomes for each participating country are presented in **Table 7**. For each country, the required minimum school and student number of participants was exceeded.

The response rate measures the proportion of students and/or schools that were sampled to participate who actually participated. During data collection, some sampled schools and students might not participate in the survey, for various reasons. These reasons include that the school is unable to participate or has closed down since the sample was drawn. In such cases, a substitute school may be used. If neither the sampled school nor the assigned substitute school participates, the sampled school is classified as a non-respondent.

See the ‘Technical paper on weighting and sample outcomes approach’, for more details, including the response rates of unweighted data, in addition to the weighted data presented in this report. (ACER, 2023b). As can be seen in **Table 8**, there was a high response rate of the sampled schools and sampled students. This includes the response rate of the original sample, as well as the sampled and substitute schools. The response rate of the sampled and substitute schools was above 90% in all countries. Only in Zambia did this dip below 90% in regard to the original sample.

DATA AND PSYCHOMETRIC ANALYSIS

Analysis of the data focussed on the following research questions:

- What proportion of students in each target grade reached SDG 4.1.1a Minimum Proficiency Levels in reading and mathematics, by gender?
- What proportion of students in each target grade reached SDG 4.1.1b Minimum Proficiency Levels in reading and mathematics, by gender?

TABLE 7: Country Sampling outcomes

COUNTRY	SCHOOL POPULATION	SCHOOL SAMPLE	STUDENT POPULATION	STUDENT SAMPLE
The Gambia	710	220	55,506	4,345
Kenya	36,334	250	1,383,991	5,566
Lesotho	1,308	219	38,926	4,014
Zambia (Grade 4)	8,143	250	474,406	4,953
Zambia (Grade 7)	8,143	250	379,200	4,888

TABLE 8: School, student and overall response rates

COUNTRY	SCHOOL RESPONSE RATE (%)		STUDENT RESPONSE RATE (%)		OVERALL RESPONSE RATE (%)	
	Original sampled schools	Sampled and substitute schools	Original sampled schools	Sampled and substitute schools	Original sampled schools	Sampled and substitute schools
The Gambia	100	100	96	96	96	96
Kenya	100	100	96	96	95	96
Lesotho	99	99	98	98	98	98
Zambia (Grade 4)	93	98	95	95	88	93
Zambia (Grade 7)	92	97	96	96	88	93

The assessment data was psychometrically scaled, using a two-dimensional model to produce estimates for mathematics and reading proficiency; details of this scaling are provided in a Technical Note (ACER, 2023a). The proportion of students above the MPLs for SDG 4.1.1a and SDG 4.1.1b were estimated. These estimates

were made by determining the number of students above each of 2 benchmarks (MPLa and MPLb) on the reading and mathematics scales. A pairwise comparison exercise was then undertaken to validate the location of the benchmarks: this validation process is described in [Appendix A](#).

Student performance in reading and mathematics

In this section, the proportion of students who are achieving above MPLa and MPLb are presented, for each grade assessed. The results are shown for each population as a whole and disaggregated by gender (girls and boys). The standard errors of the proportions reported in this section can be found in [Appendix D](#).

Noting that the AMPL was administered in different grades or stages of schooling and in different contexts in each country, the focus of interpretation should not be on comparisons between countries. Rather, it is important to keep in mind that each country has chosen to measure outcomes of a particular population against a global benchmark – the Minimum Proficiency Levels in reading and mathematics referenced in SDG indicator 4.1.1. These results from 2023 can also be considered in the light of results from the 2021 MILO study (see [Appendix E](#)), where five African countries measured student proficiency in mathematics and reading of AMPL-b.

STUDENT PROFICIENCY IN MATHEMATICS

Table 9 shows the proportion of students achieving MPLa and MPLb in mathematics. In the 2 countries that administered the AMPL at the end of lower primary school, the Gambia (Grade 3) and Zambia (Grade 4), about 26% and 14% of students, respectively, achieved MPLa for mathematics. A small proportion of students in these populations also achieved the MPL for the end of primary school, although this is not reportable against the SDG indicator associated with the assessed stage of schooling.

In the 3 countries that administered the AMPL at the end of primary school, Kenya, Lesotho and Zambia, about 37%, 20% and 16% of students respectively, achieved MPLb. While the focus of undertaking the assessment in Kenya, Lesotho and Zambia at the end of primary school was to

TABLE 9: Proportions of students achieving MPLs for mathematics

COUNTRY	GRADE	STAGE OF SCHOOLING OF ASSESSMENT	PERCENT REACHING OR EXCEEDING MPLA (LOWER PRIMARY)	PERCENT REACHING OR EXCEEDING MPLB (END OF PRIMARY)
The Gambia	3	Lower primary	25.8	3.6
Zambia	4	Lower primary	14.4	1.3
Kenya	6	End of primary	88.6	36.9
Lesotho	7	End of primary	83.9	19.7
Zambia	7	End of primary	76.1	16.0

Only figures shaded in purple are relevant for reporting against the associated SDG 4.1.1 indicator.

determine the proportion of students reaching MPLb, the AMPL-ab study enables a richer understanding of student proficiency by showing the proportions of students in these populations meeting MPLa. A majority of students in each of these populations achieved MPLa. The distribution of student achievement across the proficiency scale is illustrated in the the Country summaries in this report.

Only figures shaded **in purple** are relevant for reporting against the associated SDG 4.1.1 indicator.

Girls and boys achieved a similar level of proficiency in mathematics, as can be seen in **Table 10**. The differences between girls and boys are statistically significant in Lesotho, at MPLa and MPLb, and in Kenya at MPLa. In Lesotho, 6.1 percentage points more girls than boys achieved MPLa, and 4.7 percentage points more girls than boys achieved MPLb. In Kenya, 2.1 percentage points more girls achieved MPLa.

STUDENT PROFICIENCY IN READING

Table 11 shows the proportion of students achieving MPLa and MPLb in reading. In the Gambia (Grade 3) and Zambia (Grade 4), about 22% and 13% of students, respectively, achieved MPLa. A small proportion of students in these populations achieved the MPL for the end of primary school.

In the three countries that administered the AMPL at the end of primary school, Kenya, Lesotho and Zambia, about 26%, 11% and 10% of students, respectively, achieved MPLb. The majority of students in all these populations achieved MPLa, albeit this is not reportable against the SDG associated with the end of primary school. These results are unpacked further in the Country summaries of this report.

There was a greater difference between girls and boys in achieving the reading MPLs than the mathematics MPLs. In every country, girls

TABLE 10: Proportion of girls and boys achieving the MPL for mathematics

COUNTRY	GRADE	STAGE OF SCHOOLING OF ASSESSMENT	PERCENT REACHING OR EXCEEDING MPLA		PERCENT REACHING OR EXCEEDING MPLB	
			(LOWER PRIMARY)		(END OF PRIMARY)	
			Girls	Boys	Girls	Boys
The Gambia	3	Lower primary	27.0	24.4	3.9	3.3
Zambia	4	Lower primary	13.9	15.1	1.3*	1.3*
Kenya	6	End of primary	89.4	87.6	37.9	36.0
Lesotho	7	End of primary	86.6	80.5	21.8	17.1
Zambia	7	End of primary	75.4	76.9	15.9	16.2

Only figures shaded **in purple** are relevant for reporting against the associated SDG 4.1.1 indicator.

Only the figures **in green** show a statistically significant difference between boys and girls.

* There are too few observations to provide reliable estimates.

TABLE 11: Proportions of students achieving the MPL for reading

COUNTRY	GRADE	STAGE OF SCHOOLING OF ASSESSMENT	PERCENT REACHING OR EXCEEDING MPLA (LOWER PRIMARY)	PERCENT REACHING OR EXCEEDING MPLB (END OF PRIMARY)
The Gambia	3	Lower primary	21.5	1.0
Zambia	4	Lower primary	12.7	0.8*
Kenya	6	End of primary	78.4	25.5
Lesotho	7	End of primary	62.1	10.8
Zambia	7	End of primary	54.7	9.7

Only figures shaded in purple are relevant for reporting against the associated SDG 4.1.1 indicator.

* There are too few observations to provide reliable estimates.

outperformed boys in at least one of the reading MPLs, as seen in **Table 12**. At the end of lower primary school, girls outperformed boys in The Gambia by 3.4 percentage points. There was no

statistically significant difference between boys and girls at the end of lower primary in Zambia. However, in regard to the end of primary school, there was a significant difference between girls

TABLE 12: Proportion of girls and boys achieving the MPL for reading

COUNTRY	GRADE	STAGE OF SCHOOLING OF ASSESSMENT	PERCENT REACHING OR EXCEEDING MPLA (LOWER PRIMARY)		PERCENT REACHING OR EXCEEDING MPLB (END OF PRIMARY)	
			Girls	Boys	Girls	Boys
The Gambia	3	Lower primary	23.1	19.6	1.2*	0.9*
Zambia	4	Lower primary	13.0	12.3	0.7*	0.8*
Kenya	6	End of primary	81.8	75.1	27.2	23.9
Lesotho	7	End of primary	66.5	56.7	12.0	9.4
Zambia	7	End of primary	55.7	53.6	11.0	8.3

Only figures shaded in purple are relevant for reporting against the associated SDG 4.1.1 indicator.

Only the figures in green show a statistically significant difference between boys and girls.

Due to rounding to one decimal place, some differences described might not exactly accord with the table.

* There are too few observations to provide reliable estimates.

and boys in Zambia, with girls outperforming boys by 2.7 percentage points. Likewise, in Lesotho, girls outperformed boys in MPLb by 2.6 percentage points. There was also a significant difference between girls and boys

achieving MPLa in Kenya, with a 6.7 percentage point advantage to girls, although there was no statistical difference between girls and boys in relation to the MPL associated with the end of primary school.

Contextualising the results

The assessment results can be better understood by recognising the contexts that can influence student proficiency. Through analysing contextual data, factors that enable or inhibit learning can be identified. The 2 primary contexts associated with learning that were investigated in this study relate to the student and school. The relationships between contextual factors and learner proficiency were explored, with effect sizes presented.

BOX 2: Effect sizes

The effect size measures the strength of the relationship between 2 variables (OECD, 2009) (OECD, 2009b), such as a contextual indicator and student performance. Effect sizes assist in comparing the strength of such relationships.

The larger the effect size the greater the impact on student performance. As a guide, effects sizes between 0 and 0.2 are considered negligible to small, between 0.2 and 0.6 are considered medium and above 0.6 are strong (Hattie, 2008). The same applies to negative effect sizes, but indicating an inverse relationship between 2 variables.

Where all the response options of a question are converted into a single composite index, the method used to measure the effect size compares the top and bottom quartiles of the index. Where response options are dichotomous the whole sample was used with the 2 variables compared.

STUDENT-LEVEL CONTEXTS

The student-level contexts that are reported below cover: student characteristics, economic, cultural, and social background, as well as health. It is important to keep in mind that most of the

information in the below tables is self-reported by students completing questionnaires. Thus, they may not be consistent with other sources, such as national enrolment data.

Age of students

AMPL-ab was implemented at 2 different stages of schooling: the end of lower primary, and the end of primary. Where these stages of schooling occur within an education system's grade structure, and what the ages of students are, can differ between jurisdictions. The mean age in each of the countries differed, as can be seen in **Table 13**. In regard to the 2 countries that implemented AMPL in the lower stage of schooling, the mean age of students in The Gambia was almost a year younger than for students in Zambia. In regard to the 3 countries that implemented AMPL at the end of primary schooling, almost 2 years in age separated the youngest cohort in Kenya and the oldest cohort in Zambia.

TABLE 13: Mean student age

	GRADE	MEAN AGE (YEARS)
The Gambia	3	10.7
Zambia	4	11.4
Kenya	6	12.6
Lesotho	7	13.3
Zambia	7	14.6

Gender of students

Students were asked about their gender in the student questionnaire. **Table 14** shows the proportions of girls and boys participating in AMPL-ab. In all participating countries, except for Kenya, slightly more than half of the participating students were girls.

TABLE 14: Gender of respondents

	THE GAMBIA	KENYA	LESOTHO	ZAMBIA G4	ZAMBIA G7
	% students	% students	% students	% students	% students
Female	55	49	55	52	52
Male	45	51	45	48	48

Preschool attendance

In every country, the majority of students reported that they attended preschool (also known as kindergarten in some countries), as seen in [Table 15](#). Preschool attendance was the highest in Kenya, with 89% of students reporting that they attended preschool. In both The Gambia and Lesotho, about three quarters of students attended preschool. Preschool attendance was lowest in Zambia, with just over 50% of students in grades 4 and 7 reporting that they attended preschool.

Language spoken at home

The language of assessment was English. This corresponds to the official language of instruction for the populations associated with the end of primary school. For end of lower primary, the population of interest was defined as students enrolled in schools where the language of instruction is English. To find out more about students' home background, they were asked what the main language was that they spoke at home. Across all countries, between 94%

and 96% of students indicated that they mainly spoke a language other than English at home, as can be seen in [Table 16](#). More information about the language of instruction for each country is provided in the section on school characteristics of the school-level contexts.

[Figure 2](#) shows the effect size for mathematics and reading proficiency, comparing students whose main language spoken at home was English with those who spoke a different language. In Kenya and Zambia, students who spoke English at home achieved higher than those who did not. There was a moderate strength of the relationship between language spoken and proficiency on mathematics and reading, with the main language spoken at home having a bigger effect on reading than on mathematics outcomes.

However, in The Gambia and Lesotho, there is an inverse relationship between main language spoken at home and proficiency, meaning that

TABLE 15: Kindergarten or preschool attendance

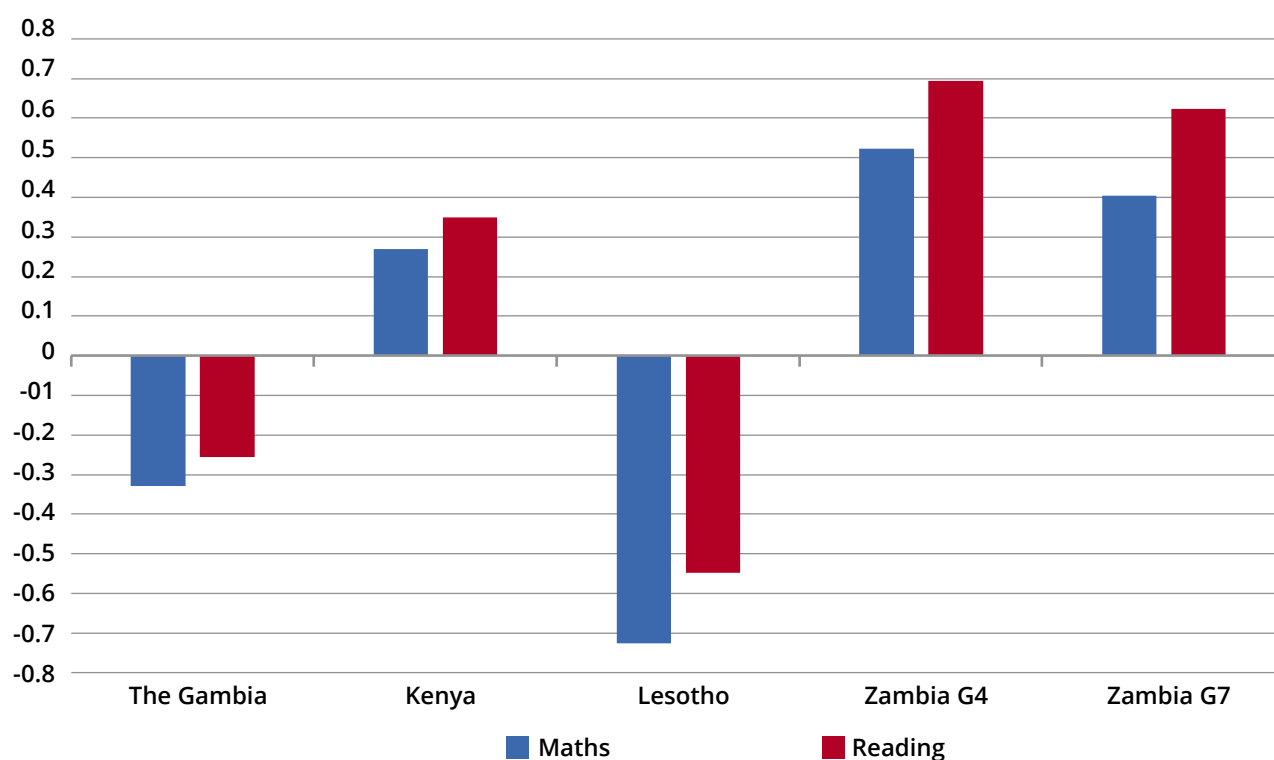
	THE GAMBIA	KENYA	LESOTHO	ZAMBIA G4	ZAMBIA G7
	% students	% students	% students	% students	% students
Yes	72	89	76	56	57
No	28	11	24	44	43

TABLE 16: Main language spoken at home

	THE GAMBIA	KENYA	LESOTHO	ZAMBIA G4	ZAMBIA G7
	% students	% students	% students	% students	% students
English (language of instruction and assessment)	6	5	6	5	6
Another language	94	95	94	95	94

students who do not speak English at home have higher proficiency. Nonetheless, there remains a bigger effect on mathematics proficiency. It is not uncommon for the effects of language of assessment to pull in opposite directions; it is seen in other large-scale assessment such as The Southeast Asia Primary Learning Metrics

(UNICEF & SEAMEO, 2020). There are many other contextual factors that could explain this. These include: if and when there is a transition of the language of instruction in schools, and whether the language of assessment is widely spoken in the community, despite not being commonly spoken at home.

FIGURE 2: Language of assessment, effect sizes associated with mathematics and reading outcomes

Family Support

Evidence suggests that parents providing support to their children enhances the academic proficiency of those children (Pacific Community Educational Quality and Assessment Programme, 2019; UNICEF & SEAMEO, 2020). Students were asked about the extent of family support they received on six indicators, ranging from: ‘never’, ‘sometimes’ to ‘often’. Students generally reported receiving more support with mathematics than with reading. All the response rates can be seen in [Appendix F](#).

The items relating to the level of support students receive from someone in their family were converted into an index that was used to measure the effect size. Students who indicated to receive a lot of family support (the top 25% quartile) had higher proficiency in mathematics and reading than students who indicated they received very little family support (bottom 25% quartile). The strength of the relationship between family support and proficiency in mathematics and reading was most pronounced in Lesotho, whilst the remaining countries exhibited similar levels of strength of that relationship, as seen in [Figure 3](#).

Family Wealth

Indicators associated with family wealth were aggregated into an index that reflects the economic context of students’ homes for each country. The family wealth index is based on the household possessions

item, which can be seen in [Appendix F](#). [Figure 4](#) shows the effect size for reading and mathematics proficiency by the country-specific index of family wealth, by comparing the wealthiest quarter of students to the least wealthy quarter. There was a medium to strong effect in reading and mathematics proficiency across most countries. There was a particularly strong effect on mathematics and reading of wealth in Zambia. A strong effect of wealth on reading was also observed in Kenya and Lesotho. ‘Wealth’ revealed the strongest effect size on reading and mathematics proficiency of all contextual factors in this study. Students who were from families with higher wealth (the top 25% quartile) consistently had higher proficiency in mathematics and reading than students who were from families with lower wealth (bottom 25% quartile).

Books at home

Students were asked about the number of books at their home. The number of books at home is a reliable measure of socioeconomic and cultural status (Jæger & Karlson, 2018; Lareau & Weininger, 2003; Sieben & Lechner, 2019; Treviño et al., 2015). Significant proportions of students had no books at home, as seen in [Table 17](#). Students in Kenya generally had the most books at home.

Parental education and literacy

Parental education and parental literacy are common components of economic, cultural and social status. To

FIGURE 3: Family support effect on mathematics and reading outcomes

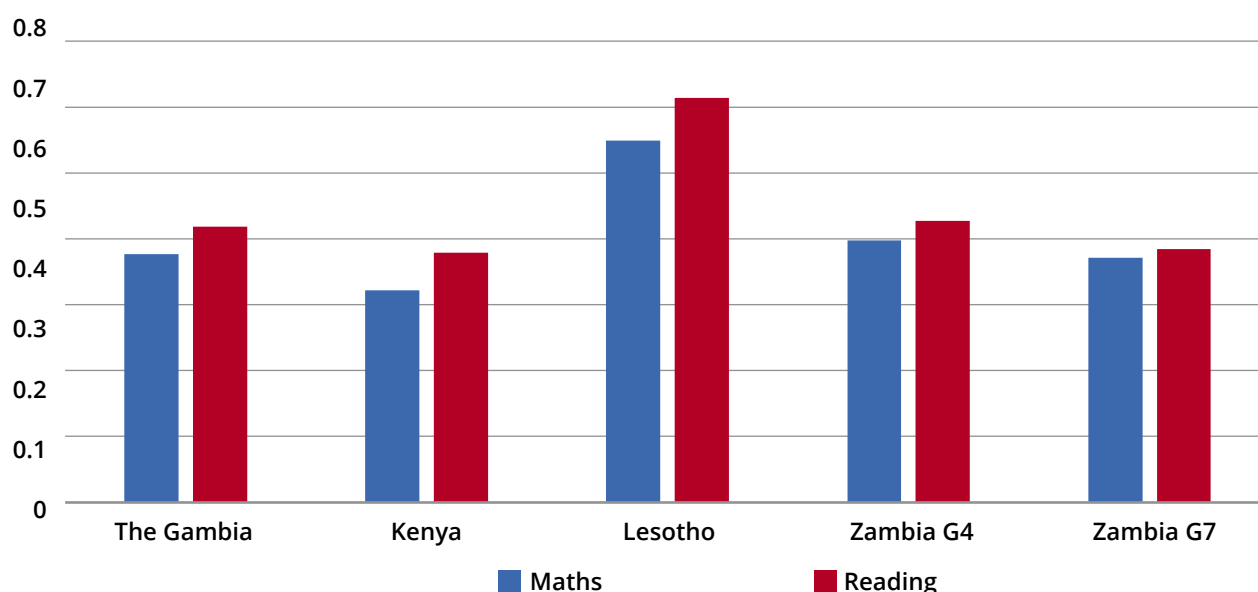
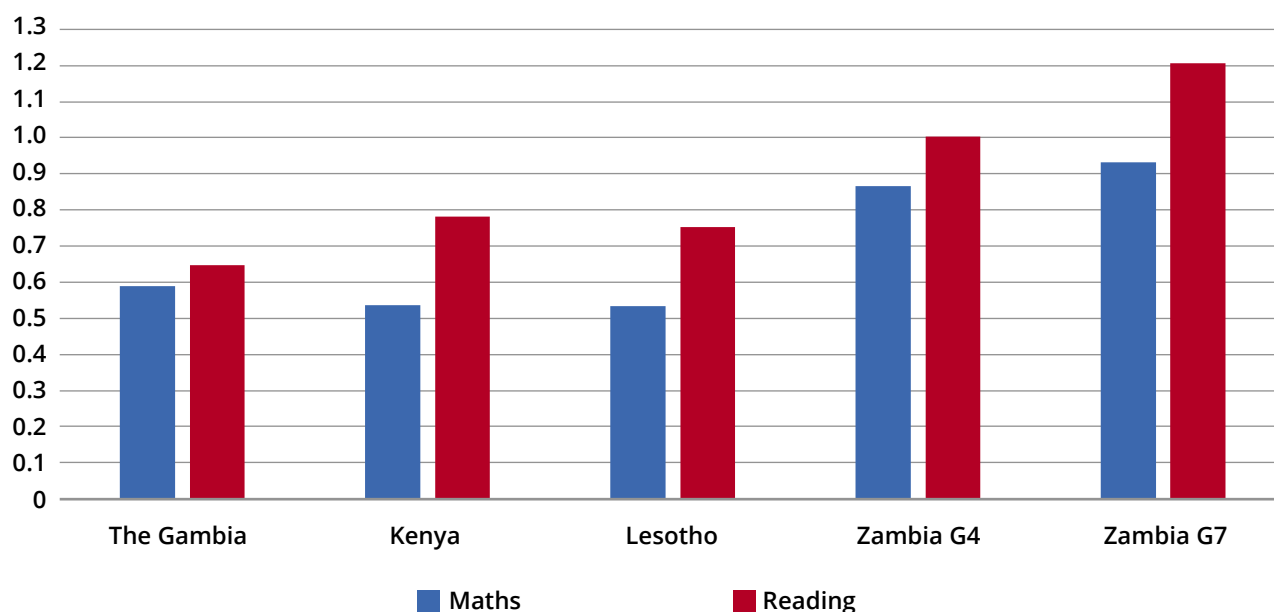


FIGURE 4: Family wealth effect on mathematics and reading outcomes**TABLE 17:** How many books are there in your home?

	THE GAMBIA	KENYA	LESOTHO	ZAMBIA G4	ZAMBIA G7
	% students	% students	% students	% students	% students
None	26	16	27	48	40
Very few (1-10 books)	48	45	44	41	44
Enough to fill one shelf (11-25 books)	15	23	16	7	9
Enough to fill one bookcase (26-100 books)	5	9	7	2	4
Enough to fill two bookcases (101-200 books)	3	3	2	1	1
Enough to fill three or more bookcases (more than 200 books)	4	5	4	1	2

Results are rounded to the nearest whole number, therefore some totals may appear inconsistent.

measure parental literacy in this study, students were asked whether their mother, female guardian, father or male guardian could read and write. In Kenya, Lesotho and Zambia more than 80% of students reported that their parents could read and write, as seen in [Table 18](#). This percentage was lower in The Gambia, where between 66% and 78% of students indicated that their parents were literate. In 3 of the 4 countries, slightly more students reported that their fathers could read and write than their mothers. Lesotho was the exception, where over 90% of students indicated that their mothers could read and write, whereas 85/86% indicated that their fathers could read or write.

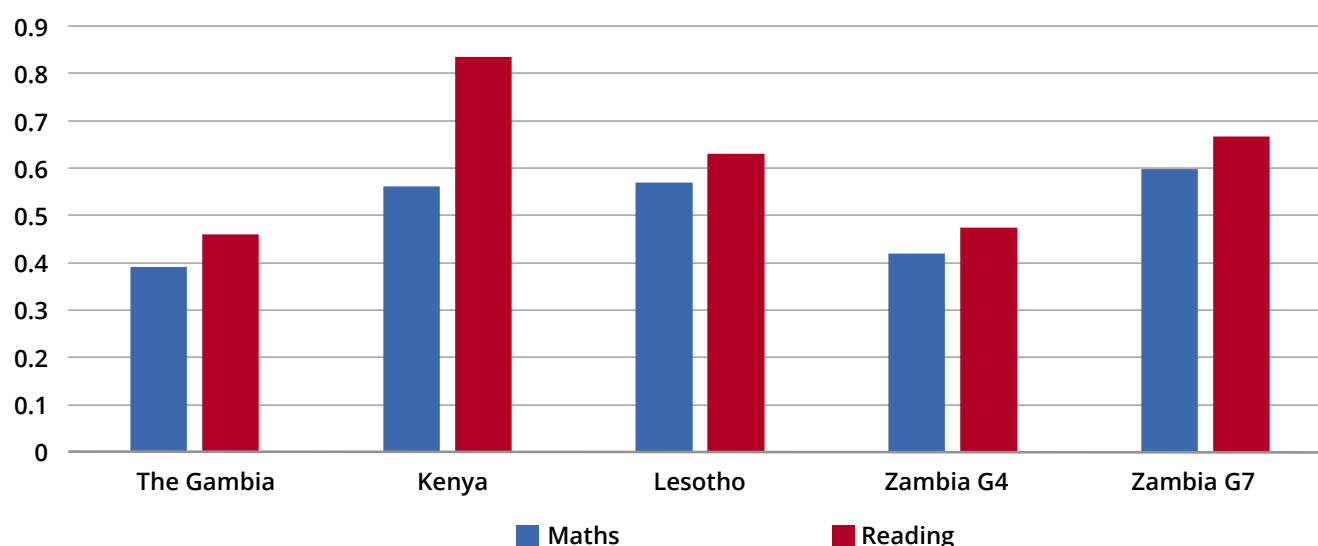
The student response data were converted into a parental literacy index. [Figure 5](#) shows the effect size of parental literacy on proficiency in mathematics and reading. Students whose both parents can read and write achieved higher proficiency in mathematics and reading than students without a parent who could read or write. Additionally, parental literacy had a bigger effect on reading than mathematics proficiency. The effect of parental literacy was particularly pronounced for reading in Kenya, where the highest proportion of parents or guardians who can read or write was also reported. This is consistent with longstanding research findings that

TABLE 18: Can your mother or female guardian, or father or male guardian, read and write?

		THE GAMBIA	KENYA	LESOTHO	ZAMBIA G4	ZAMBIA G7
		% students	% students	% students	% students	% students
Mother*	She can read	67	91	94	83	80
	She can write	66	90	93	83	82
Father^	He can read	78	92	85	90	89
	He can write	76	91	86	89	89

* This includes female guardian. ^ This includes male guardian.

FIGURE 5: Parental literacy effect



the children of parents with lower literacy tend to have lower academic outcomes (Wagner & Spratt, 1988).

Students were also asked about their mother's and father's highest level of completed formal education. In all countries, students on average reported their fathers had a higher formal education than their mothers. The complete results relating to levels of formal education attained can be seen in **Appendix G**.

Students who had a university educated parent, achieved higher proficiency in mathematics and reading than students without a university educated parent. In The Gambia, where reported parental level of education completed was lowest in both parents, the effect of parental education was also weakest. The strength of the effect of parental education was similar across the remaining countries, as seen in **Figure 6**.

Student nutrition

Nutrition can have significant effects on academic achievement (Mukudi, 2003; Prangthip et al., 2021; Shariff et al., 2000) height for age, and relative weight for height, and the values were derived from the raw data. Percentage of attendance rates derived from daily school attendance and raw scores on the Kenya Certificate of Primary Education were the measures of educational

participation and achievement. Statistical analysis included descriptive statistics, analyses of variance, correlation, and linear regression analyses. Twenty-nine percent of the children fell below the 90% cutoff value for acceptable relative weight for height. The percentages of the population falling below -2 standard deviations on indices for height for age and weight for age were 16.64 and 3.78, respectively. Univariate analyses showed that anthropometric assessment varied by school and sex. School attendance rates varied by school and grade. Achievement scores on the Kenya Certificate of Primary Education varied by school and the interaction of sex by school. Regression analysis showed attendance rate to be the strongest predictor of achievement, followed by relative weight for height. Prevalence of nutritional stress is a significant educational problem in this population. The association between attendance rate and nutrition status is a function of socioeconomic status. The predictive effect of nutrition status on educational achievement is more evident for girls with poor socioeconomic status. To inform the level of student nutrition, students were asked which meals they eat on a normal day, and what types of food they eat. Students whose score was higher on the nutrition scale (the top 25% quartile) achieved higher proficiency in mathematics and reading than students whose score was low on the nutrition scale (bottom 25% quartile). The relationship between nutrition and proficiency in mathematics

FIGURE 6: Parental education effect on mathematics and reading outcomes

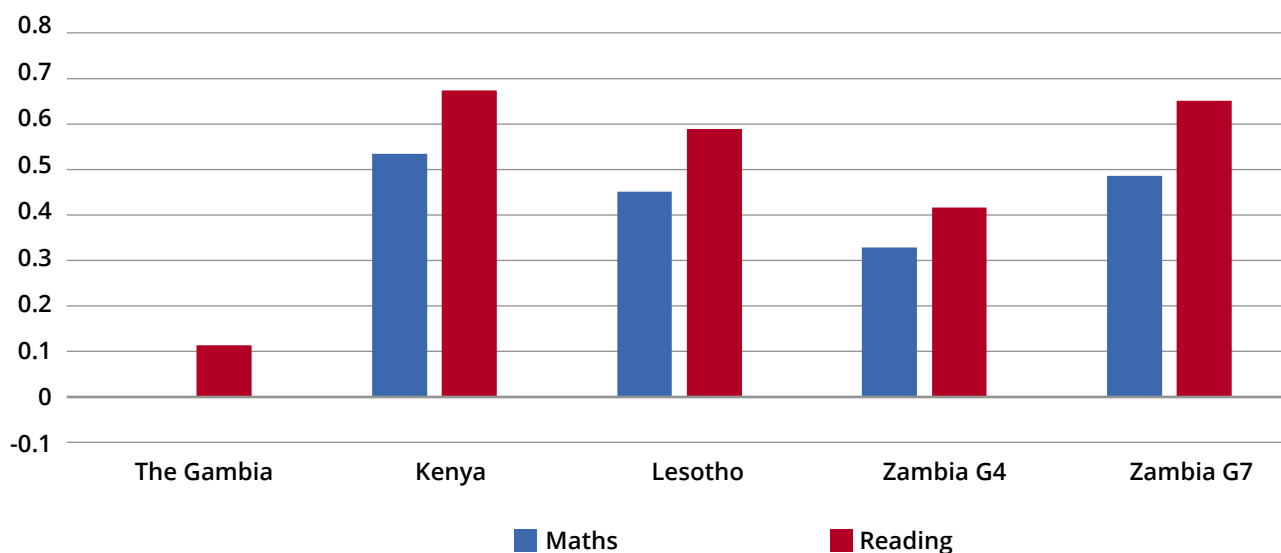
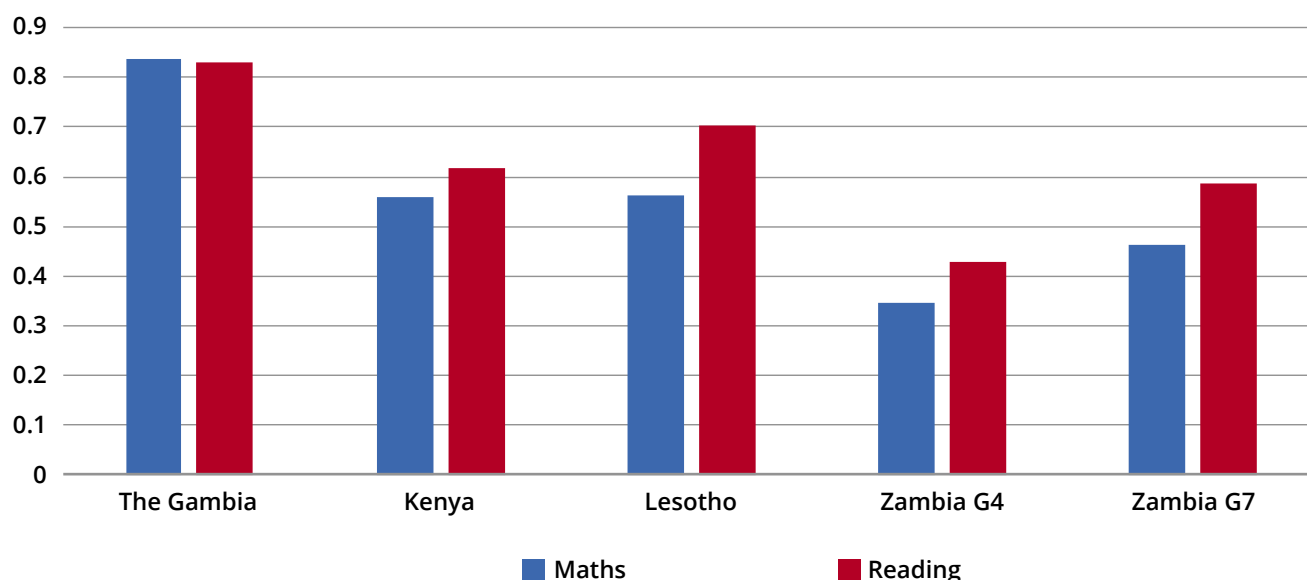


FIGURE 7: Nutrition effect on mathematics and reading outcomes

and reading was generally stronger in reading than mathematics. There was a particularly strong relationship between nutrition with mathematics and reading proficiency in The Gambia, as seen in [Figure 7](#).

Data was collected about other health indicators, including practices related to handwashing and the frequency of missing school due to illness, along with the rates that school leaders reported students missing school due to illness. Additionally, data about whether schools provide meals to students was also collected. The details of these results can be found in [Appendix F](#).

SCHOOL-LEVEL CONTEXTS

The school-level contexts that are reported in this section cover: the characteristics of the school principal, school characteristics, school facilities and resources, teachers and students, and health. In addition to the information provided in the below section about school-level contexts, more detail can be found in [Appendix F](#). This includes characteristics of school leaders, the school in general and support provided to students.

All school-level results came from the school questionnaire which was completed by the principal

TABLE 19: Gender of school leaders

	THE GAMBIA	KENYA	LESOTHO	ZAMBIA
	% students	% students	% students	% students
Female	37	29	67	32
Male	63	71	33	68

The data has been weighted for the different size of schools; therefore school-level data is reported in terms of the proportion of students who attended a school where the school leader provided the given data.

TABLE 20: Highest level of education of school leaders

	THE GAMBIA	KENYA	LESOTHO	ZAMBIA
	% students	% students	% students	% students
[ISCED level 2] or below	2	N/A	N/A	2
[ISCED level 3]	27	1	1	2
[ISCED level 4 or 5]	63	51	43	28
[ISCED level 6]	6	40	55	56
[ISCED level 7 or 8]	2	9	1	12

For definitions of each ISCED level for each country, see Appendix F.

Results are rounded to the nearest whole number, therefore some totals may appear inconsistent.

The data has been weighted for the different size of schools; therefore school-level data is reported in terms of the proportion of students who attended a school where the school leader provided the given data.

or their delegate. However, as the student is the unit of analysis in this study, the results are weighted by the number of students in the population attending the school. Therefore, the results in this section are reported as the percentage of students in a school whose principal completed the school questionnaire. For example, in **Table 19**, 31% of students across all countries had a principal who responded that she was female.

School leader characteristics

In terms of the characteristics of school leaders, students were most likely to attend a school where the principal was male, as seen in **Table 19**. On average, around two-thirds of students attended schools where the principal identified as male, the exception being in Lesotho, where two-thirds of the school leaders were female.

Principals were asked to identify their highest level of education completed, as seen in **Table 20**. Terminology that refers to the level of education has been consistently applied across all the countries, although it may differ within a given country. For more detailed definitions of the levels for each country, see **Appendix F**.

Students were most likely to attend a school where the principal had a diploma/certificate (ISCED level 4 or 5) or bachelor-level qualification (ISCED level 6). The education level of school leaders was not as consistent across countries, however. In The Gambia, most students were attending a school where the school leaders had senior secondary (ISCED level 3 – 27%) or diploma/certificate level (ISCED level 4 or 5 – 63%) qualifications. In Zambia, just under one third of students attended schools where school leaders had diploma/certificate level qualifications (ISCED level 4 or 5 – 28%), and around two-thirds had bachelor's degrees or higher (ISCED level 6, 7 and 8 – 68%). These results can be seen in **Table 20**.

School characteristics

In terms of the characteristics of the school itself, students were most likely to attend schools that are publicly managed, as seen in **Table 21**.

Students were also most likely to attend schools located in communities with fewer than 3,000 people, see **Table 22**. Other school characteristics related to the facilities and resources of school can be seen in **Appendix F**.

TABLE 21: School management type

	THE GAMBIA	KENYA	LESOTHO	ZAMBIA
	% students	% students	% students	% students
Publicly-managed	81	82	93	96
Privately-managed	19	18	7	4

The data has been weighted for the different size of schools; therefore school-level data is reported in terms of the proportion of students who attended a school where the school leader provided the given data.

TABLE 22: Location type of school

	THE GAMBIA	KENYA	LESOTHO	ZAMBIA
	% students	% students	% students	% students
In a community with fewer than 3,000 people	37	66	65	56
In a town with at least 3,000 but less than 15,000 people	26	7	22	15
In a town with at least 15,000 but less than 100,000 people	29	17	12	15
In a city with at least 100,000 but less than 1,000,000 people	7	5	2	8
In a city with over 1,000,000 people	0	4	0	5

Results are rounded to the nearest whole number, therefore some totals may appear inconsistent.

The data has been weighted for the different size of schools; therefore school-level data is reported in terms of the proportion of students who attended a school where the school leader provided the given data.

In The Gambia, Kenya and Lesotho, most students attended a school where the school principal indicated that the primary language of instruction was English (the language of assessment), as seen in [Table 23](#). This corresponds to the target populations considered for AMPL-ab, where English is the official language of instruction for the populations associated with the end of primary school. For end of lower primary, the population of interest was defined as students enrolled in schools where the language of instruction is English. In these countries language policies affirm that English

should be the language of instruction from Grade 4 onward, with anecdotal evidence that despite the policy, many schools start instructing in English earlier than Grade 4, whilst others continue to use local languages. In Zambia, 75% of students in Grade 4 and 71% of students in Grade 7, attended schools where the primary language of instruction is a language other than English. In Zambia, the official language policy requires students to be instructed in English from Grade 5 onwards, and thus for the majority of primary schools, instruction is in a local language.

Support for students

As indicated in the previous section on student-level contexts, more than 90% of students in all countries spoke a language other than English at home. In regard to whether schools provide additional support for reading in English for students in the test's target grades, the majority of students did attend a school that provided such

support, as seen in [Table 24](#). This support might be extra classes or tutoring, for example. There was, however, a relatively high proportion of Grade 7 students in Lesotho (36%) who did not have access to support at all. Additionally, in The Gambia, a third of students attended a school that require parents to pay for some or all of the additional support for their Grade 3 students.

TABLE 23: Primary language of instruction

	THE GAMBIA	KENYA	LESOTHO	ZAMBIA G4	ZAMBIA G7
	% students	% students	% students	% students	% students
English (assessment language)	84	68	69	25	29
Another language	16	32	31	75	71

The data has been weighted for the different size of schools; therefore school-level data is reported in terms of the proportion of students who attended a school where the school leader provided the given data.

TABLE 24: Additional support for reading instruction to students whose heritage language is not English

	THE GAMBIA	KENYA	LESOTHO	ZAMBIA G4	ZAMBIA G7
	% students	% students	% students	% students	% students
Yes, for free	48	72	63	75	84
Yes, partially or fully paid by parents	34	14	1	4	1
No	17	14	36	21	14

Results are rounded to the nearest whole number, therefore some totals may appear inconsistent.

The data has been weighted for the different size of schools; therefore school-level data is reported in terms of the proportion of students who attended a school where the school leader provided the given data.

Country summaries

This section provides a summary of the results for each country participating in AMPL-ab. Since Kenya and Zambia participated in AMPL-b 2021 UIS MILO (UIS, 2022a), the AMPL-b results can be compared between these 2 administrations for these 2 countries. Further insights for policy and practice can be gained by examining the results alongside Minimum Proficiency Levels: Described, unpacked and illustrated (ACER,2022).

BOX 3: Performance distribution charts

For each country, the distribution of students’ mathematics and reading performance is displayed in a ‘performance distribution chart’.

The 2 dashed vertical lines in these charts indicate the approximate locations of the MPLa and MPLb benchmarks – providing information about the approximate proportion of students achieving above MPLa and below MPLb (ie., between MPLs).

The vertical axis of these plots indicates the ‘density’ of student proficiency. The entire shaded area is equal to a total probability of 1. The shaded area sectioned by the MPL vertical lines gives the proportion of the students above and below each benchmark.

THE GAMBIA

In The Gambia AMPL-a was administered to a representative sample of Grade 3 students. There are 6 grades in primary school in The Gambia, with Grade 3 marking the final year of lower primary school. The Gambia sample and response rate can be seen in [Table 25](#).

Assessment results – The Gambia

In The Gambia, just over a quarter of students met or exceeded MPLa for mathematics, and over a fifth of students for reading, as seen in [Table 26](#). A greater proportion of girls achieved the MPLa in reading than boys, with a 3.4 percentage point gap. This is the only statistically significant difference between girls’ and boys’ proficiency.

A fuller picture of student proficiency in The Gambia can be provided by breaking down these figures according to the proportion of students below MPLa, between MPLa and MPLb and above MPLb. This is illustrated in [Figure 8](#) and [Figure 9](#). Amongst Grade 3 students 74.2% were below MPLa in mathematics, and 78.5% were below MPLa in reading. 22.2% of students achieved between MPLa and MPLb in mathematics, 20.5% in reading. 3.6% of students achieved MPLb in mathematics, and 1% in reading – the standard associated with end of primary school.

TABLE 25: Sample of The Gambia Grade 3 population

SCHOOL POPULATION	SCHOOL SAMPLE	SCHOOL RESPONSE RATE (%)	STUDENT POPULATION	STUDENT SAMPLE	STUDENT RESPONSE RATE (%)	OVERALL RESPONSE RATE (%)
710	220	100%	55,506	4,345	96%	96%

Response rates refer to weighted data of sampled and substitute schools.

TABLE 26: Proportion of Grade 3 students in the Gambia reaching or exceeding MPLa in mathematics and reading

Domain	PERCENT REACHING OR EXCEEDING MPLa (LOWER PRIMARY)		
	All students	Girls	Boys
Mathematics	25.8	27.0*	24.4*
Reading	21.5	23.1	19.6

Due to rounding to one decimal place, some differences described might not exactly accord with the table.

* The difference between girls and boys is not statistically significant.

The below figures also illustrate the breadth of mathematics and reading performance amongst Grade 3 students in The Gambia. The figures show a similar distribution in reading and mathematics, with most students clustering around the middle of the distribution, which is below MPLa. In both reading and mathematics, there was a broader distribution of students performing above the mean, than below the mean.

Contextualising the results – The Gambia

The AMPL-ab results for the Gambia can be better understood by recognising the contexts associated with student learning. Effect sizes are used to indicate the strength of a relationship between a contextual indicator and performance. **Figure 10** shows that in The Gambia, ‘nutrition’ had a strong effect on mathematics and reading proficiency. ‘Wealth’ had

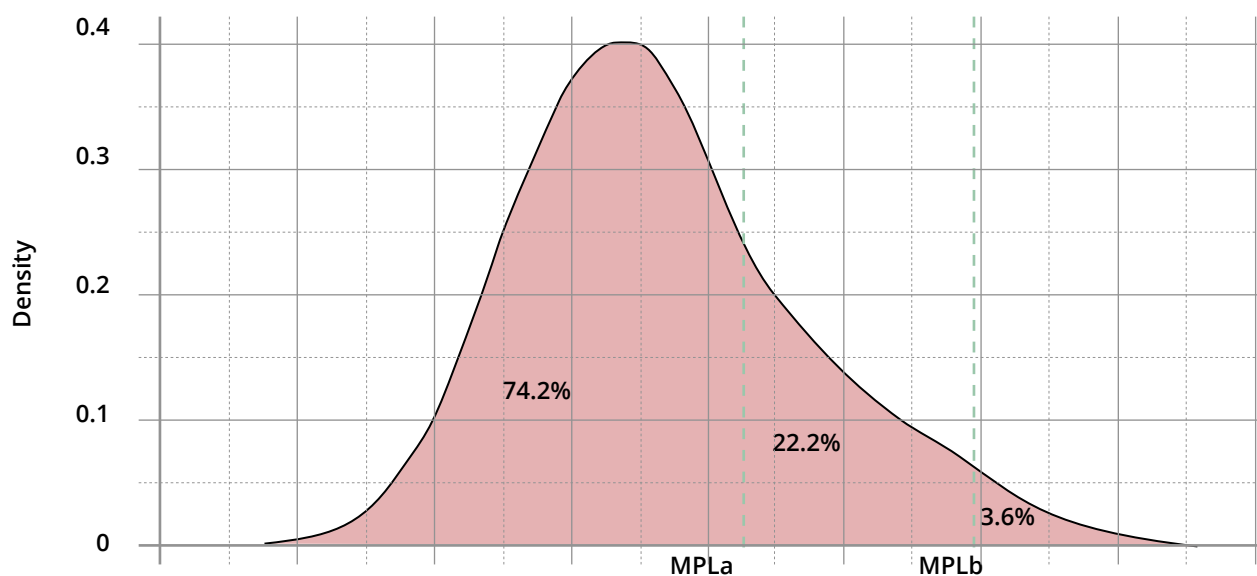
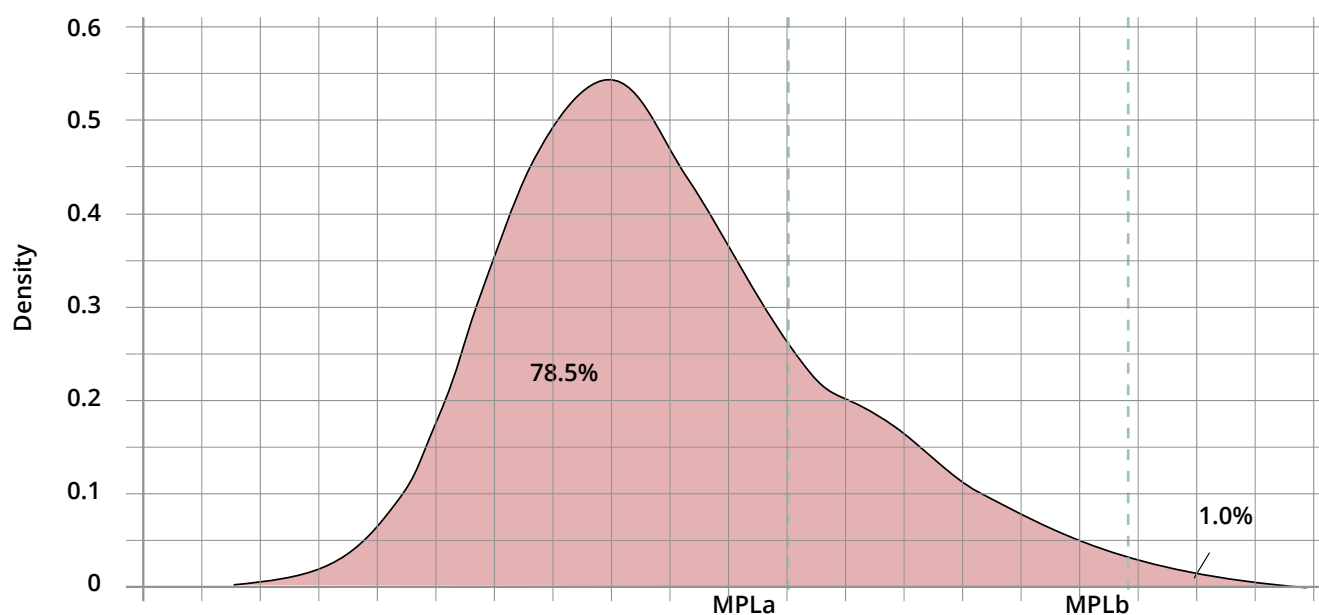
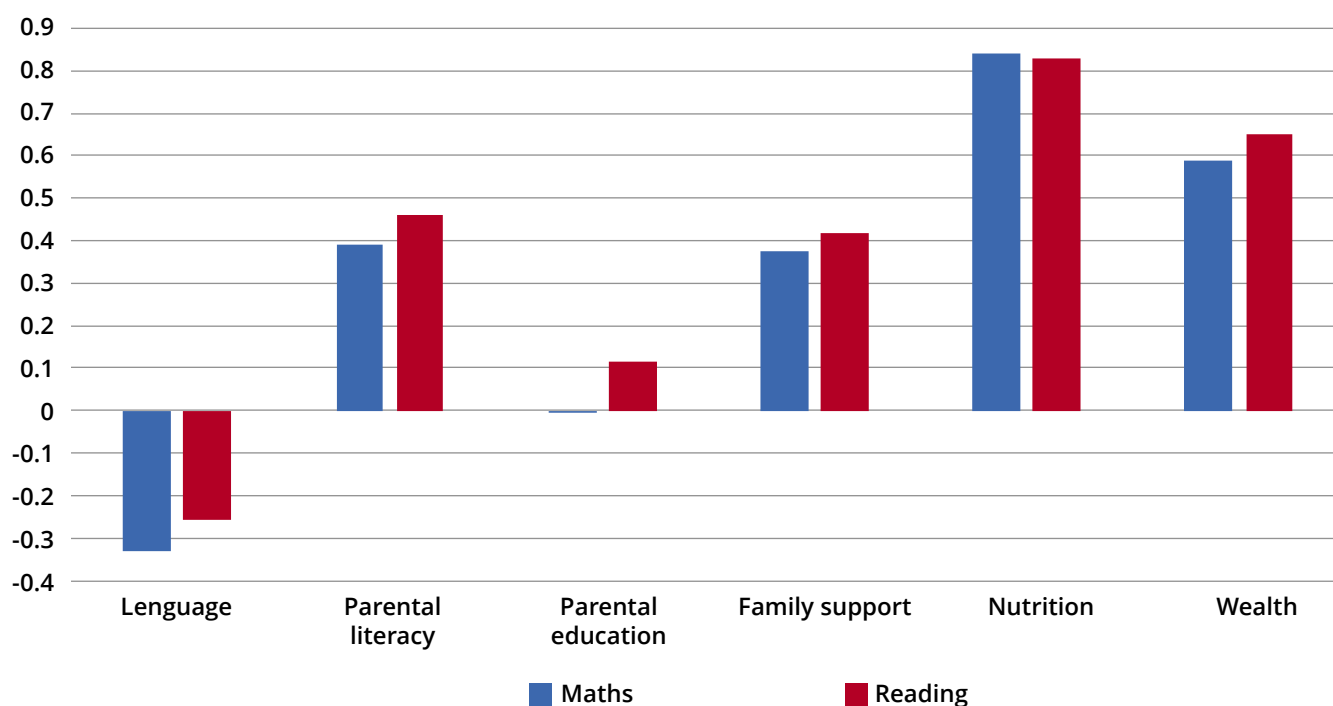
FIGURE 8: Mathematics performance distribution, The Gambia, Grade 3

FIGURE 9: Reading performance distribution, The Gambia, Grade 3

a moderate to strong effect. 'Family support' and 'parental literacy' had a moderate effect. Students who indicated they spoke the assessment language at home (i.e. English) demonstrated lower proficiency in mathematics and reading than those students

who did not speak English as home. This is counter-intuitive but the fact that those speaking English at home represent only 6% of the population suggests a more detailed examination is needed of the context of these learners.

FIGURE 10: Effect sizes of selected contextual factors on mathematics and reading outcomes – The Gambia

* Language: Students who spoke the assessment language (i.e. English) at home, compared to those who did not speak the assessment language at home.

KENYA

In Kenya AMPL-a and AMPL-b were administered to a representative sample of Grade 6 students. The details of Kenya's sample and response rate can be seen in [Table 27](#).

Assessment results – Kenya

In Kenya, 36.9% students in Grade 6 reached or exceeded MPLb for mathematics, and just over a quarter of students reached or exceeded MPLb for reading, as seen in [Table 28](#). 89% of students in Grade 6 achieved MPLa in mathematics and over three quarters of students did so for reading.

There was no statistically significant difference between girls and boys reaching MLPb in mathematics and reading. However, the differences are statistically significant at MPLa, where more girls than boys

reached MPLa in mathematics (2.1 percentage points) and reading (6.7 percentage points).

A fuller picture of student proficiency in Kenya can be provided by breaking down these figures according to proportion of students below MPLa, between MPLa and MPL' and above MPLb. This is illustrated in [Figure 11](#) and [Figure 12](#). In Kenya, more than half of students in mathematics (51.6%) and reading (52.9%) achieved between MPLa and MPLb. 11.4% of students performed below MPLa in mathematics. Almost twice as many students (21.6%) performed below MPLa in reading.

The same figures also illustrate the breadth of mathematics and reading performance amongst Grade 6 students in Kenya. There is a similar distribution in reading and mathematics, with most students clustering around the middle of the

TABLE 27: Sample of Kenya Grade 6 population

SCHOOL POPULATION	SCHOOL SAMPLE	SCHOOL RESPONSE RATE (%)	STUDENT POPULATION	STUDENT SAMPLE	STUDENT RESPONSE RATE (%)	OVERALL RESPONSE RATE (%)
36,334	250	100	1,383,991	5,566	96	96

Response rates refer to weighted data of sampled and substitute schools.

TABLE 28: Proportion of Grade 6 students in Kenya reaching or exceeding MPLa and MPLb in mathematics and reading

DOMAIN	PERCENT REACHING OR EXCEEDING MPLa (LOWER PRIMARY)	PERCENT REACHING OR EXCEEDING MPLb (END OF PRIMARY)
Mathematics	88.6	36.9
Reading	78.4	25.5

Only figures shaded in purple are relevant for reporting against the associated SDG.

FIGURE 11: Mathematics performance distribution, Kenya, Grade 6

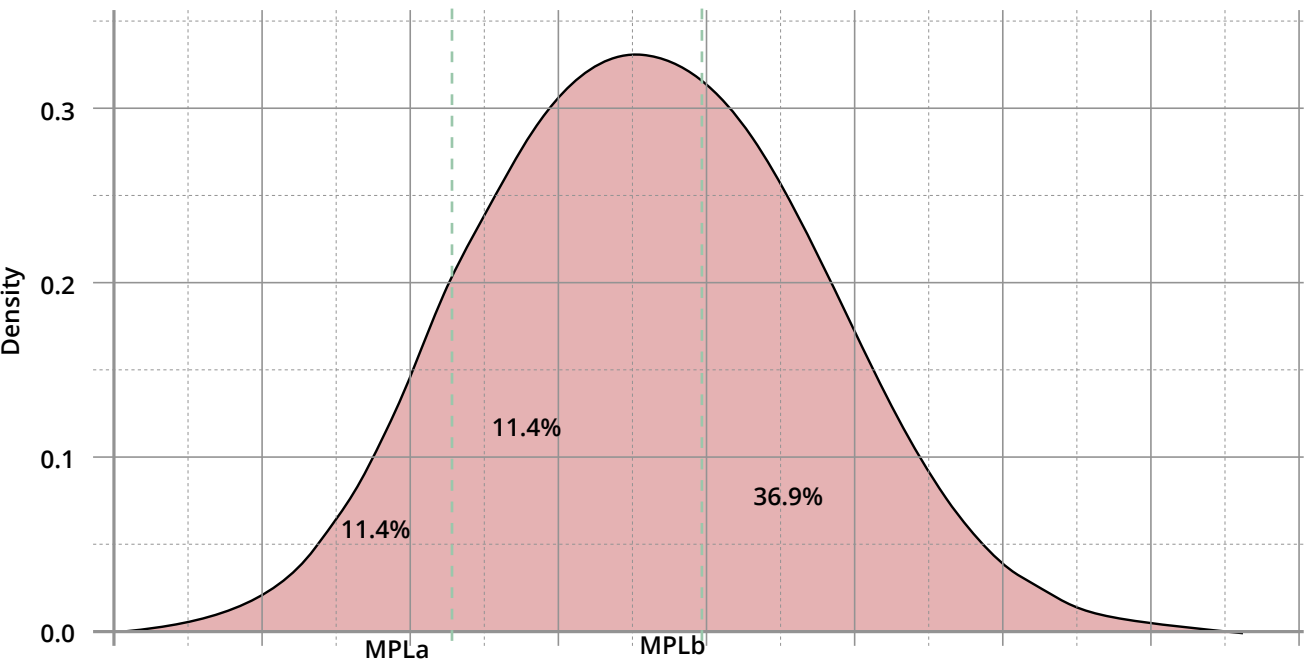
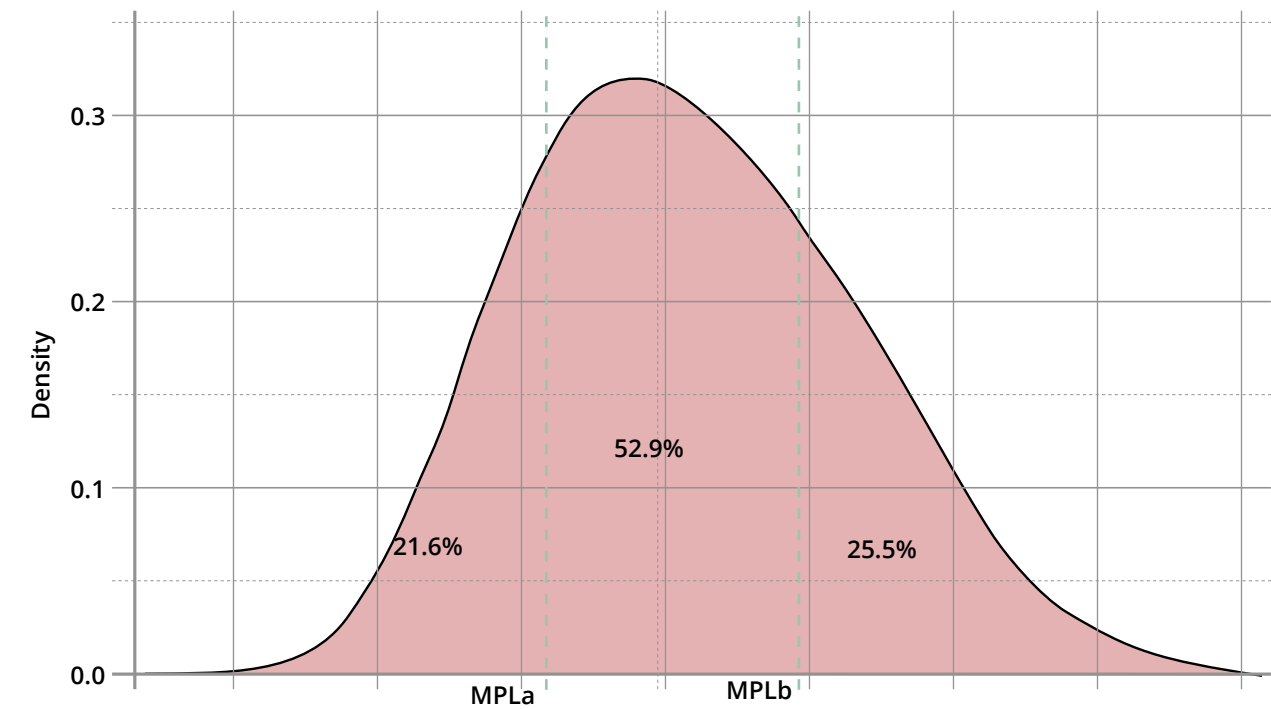


FIGURE 12: Reading performance distribution, Kenya, Grade 6



distribution. However, with mathematics, there appears to be a normal distribution of student performance, whereas with reading, the distribution is positively skewed, whereby there is a broader distribution of students performing above the mean, than below the mean.

Contextualising the results – Kenya

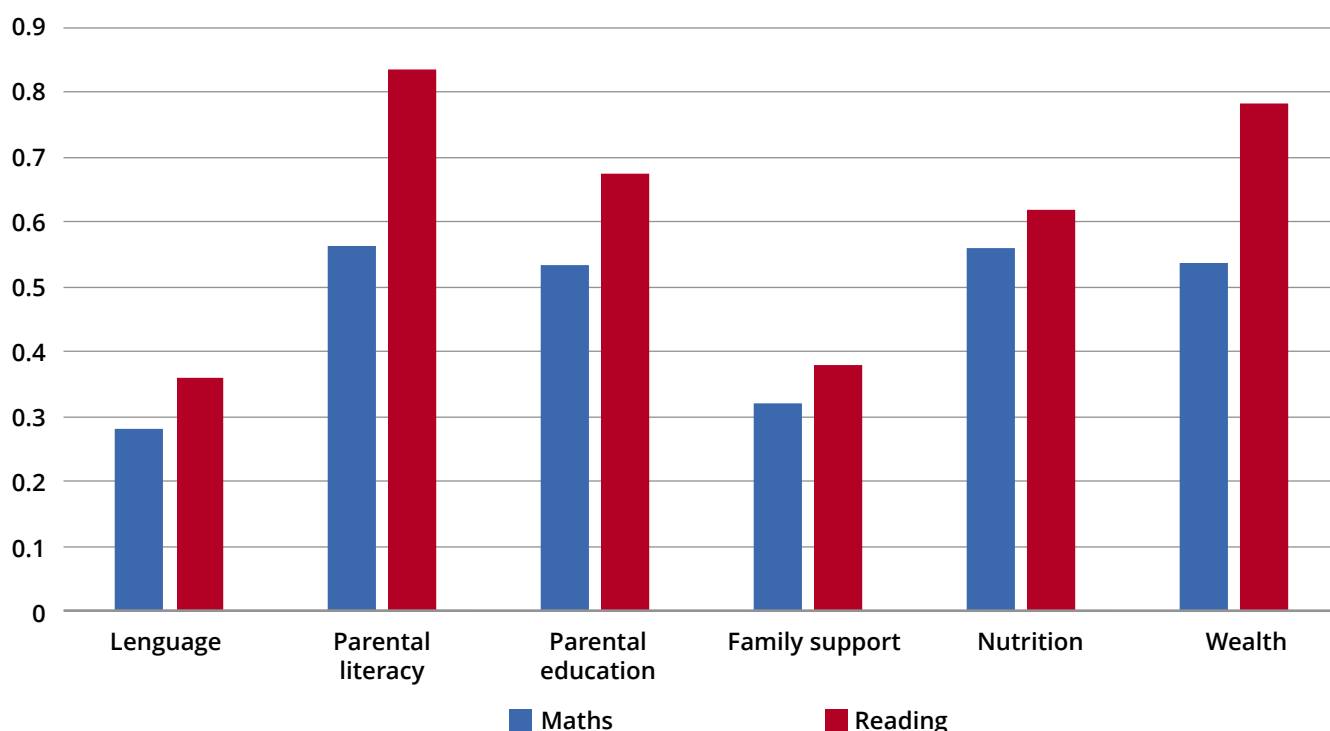
The AMPL-ab results for Kenya can be better understood by recognising the contexts associated with student learning. Effect sizes are used to indicate the strength of a relationship between a contextual indicator and performance. **Figure 13** shows that ‘parental literacy’, ‘wealth’, ‘parental education’ and ‘nutrition’ all had strong effects on reading proficiency, and moderate effects on mathematics proficiency. ‘Family support’ and English being spoken at home as the main language had moderate effects on both reading and mathematics proficiency in Kenya.

Comparing Kenya’s results for MPLb between 2023 and 2021

The AMPL-b 2023 results were consistent with the AMPL-b 2021 results from the MILO study in that a higher proportion of students in Grade 7 in 2021 met MPLb than in Grade 6 in 2023 (see **Table 29**). While this result is consistent with the expectation that proficiency increases as students progress through the education system, the magnitude of difference between the 2 populations over a period of 2 years is noticeable.

There are 4 likely explanations for the difference in the proportion of students meeting MPLb in 2023 and 2021. First, there is a two-year age difference between the 2 cohorts, as seen in **Table 29**. A reason for the age difference is that in 2021, the school year was extended for 6 months to make up for the COVID-19 school closures that occurred in 2020. Accordingly, the 2020 school year went from January

FIGURE 13: Effect sizes of select contextual factors on mathematics and reading outcomes - Kenya



* Language: Students who spoke the assessment language (i.e. English) at home, compared to those who did not speak the assessment language at home.

2020 to July 2021. As a result, the Grade 7 students who were tested in mid-2021 as part of the UIS MILO study, would have typically been in Grade 8, if COVID had not occurred. This has resulted in Grade 7 students assessed in mid-2021 to be on average 2 years older than Grade 6 students assessed in mid-2023. Hence, even though AMPL 2021 and 2023 in Kenya are both measuring students towards the end of primary school, those who undertook the AMPL in 2021, had an additional year of schooling and were 2 years older. This is a substantial difference between the populations, and it would be expected that it would be associated with a significant difference in proficiency results.

Second, a population bias in the economic, cultural, and social background of students may have contributed to the difference in proficiency results. As seen in **Table 29**, far fewer students in 2021 (39%) had fewer than 10 books at home than in 2023 (61%). The result of such a population bias would likely be reflected in a lower proportion of students meeting MPLb.

A likely explanation for the difference in the populations might be that when MILO was undertaken in 2021, a higher percentage of disadvantaged children may not have returned to school, hence they would not have been included in the MILO sample. However, by 2023, most children had returned to school (Cameron et al., 2022). Thus, the AMPL 2023 results would include a greater number of children from disadvantaged backgrounds, who on average have lower

academic proficiency (Liu et al., 2022; Selvitopu & Kaya, 2023). Even without COVID-19, fewer disadvantaged children may stay at school until Grade 7. Thus, more disadvantaged children may have been included in the 2023 results at Grade 6.

Third, it appears that the full effects of the COVID-19 school closures are still materialising. In 2020, schools in Kenya were fully closed for 28 weeks, and partially closed for a further 9 weeks (UIS, 2022b), which disrupted education and potentially caused long lasting impacts on learning (Cameron et al., 2022). This is a longer period of school closure than in many other countries in Africa. Longer school closures are associated with greater learning loss, with children from disadvantaged backgrounds effected the most (Patrinos et al., n.d.). The MILO study showed that Kenya experienced some statistically significant learning loss, when comparing results from before the pandemic in 2019 to during the pandemic in 2021. Specifically, there was a decrease of 9.3 percentage points of boys meeting MPLb in mathematics (UIS, 2022a). There is also evidence from Kenya that children in lower grades were affected by school closures more than children in higher grades (Zaman, 2021). Hence, the young children whose foundational education was disrupted in early primary school, were the ones who undertook AMPL in 2023 at the end of primary school. Whereas most of those students who were assessed as part of MILO in 2021, benefitted from uninterrupted schooling until their seventh year of school. The assumption that the full effects of the

TABLE 29: Comparing sample and MPLb results for Kenya between 2023 and 2021

COUNTRY & YEAR	GRADE	AGE MEAN YEARS (SD)	PERCENT OF STUDENTS WITH FEW BOOKS AT HOME*	PERCENT MEETING OR EXCEEDING MPLB MATHEMATICS	PERCENT MEETING OR EXCEEDING MPLB READING
Kenya (2023)	6	12.6 (1.4)	61%	36.9	25.5
Kenya (2021)	7	14.6 (1.3)	39%	74.1	46.7

*10 books or fewer. This is an important economic, cultural, and social background indicator.

COVID-19 school closures are still materialising would also be consistent with evidence from OECD/PISA 2022, that showed an unprecedented decline in mean performance across OECD countries (OECD, 2023).

Fourth, students in the 2023 study were assessed in a context of recent reforms to the Kenyan education system that have included structural changes. In 2017, primary school was reduced from 8 years to 6 years. These changes were introduced incrementally; students who commenced school prior to 2017, continued with the previous structure. The students who undertook the AMPL in 2023 were the second cohort who commenced school under the new structure. The students who undertook AMPL-b in 2021 as part of the MILO study were in Grade 7; at the time this was the penultimate grade of primary school.¹

For students who undertook AMPL in 2023, any benefits of the reforms probably had not yet eventuated, whilst at the same time they experienced one less year of schooling. It is possible that it might take some time to adjust to the changes to the education system. For example, teachers need time to adjust to teaching the appropriate curriculum for a given grade. These 2023 results are measuring student proficiency in a system undergoing transition, which could have effected outcomes.

All four explanations may likely have contributed to the differences in the percentage of students achieving MPLb in Kenya between 2021 and 2023, nor can other factors be excluded. Ongoing monitoring of student proficiency is therefore essential to establish the future trend.

¹ MILO was administered in the penultimate rather than the ultimate Grade of primary school, chiefly so that the results could be compared to the most recent national assessment, which was undertaken in Grade 7.

LESOTHO

In Lesotho AMPL-a and AMPL-b were administered to a representative sample of students in Grade 7, which is the final grade of primary school in Lesotho. The Lesotho sample and response rate can be seen in [Table 30](#).

Assessment results – Lesotho

In Lesotho, almost a fifth of Grade 7 students reached or exceeded MPLb for mathematics, and just over a tenth did so in reading. A greater proportion of girls achieved MLPb in reading than boys, with a 2.7 percentage point gap. Similarly, 4.7 percentage points more girls achieved MPLb in mathematics. The proficiency differences between girls and boys are statistically significant.

Over 80% of Grade 7 students achieved MPLa in mathematics. A greater proportion of girls achieved MLPa in mathematics than boys, with a 6.1 percentage point gap. A lower proportion of students achieved MPLa in reading (62.1 %), with 9.7 percentage points more girls achieving MPLa than boys. These results can be seen in [Table 31](#).

A fuller picture of student proficiency in Lesotho can be provided by breaking down these figures according to the proportion of students below MPLa, between MPLa and 'b' and above MPLb. This is illustrated in [Figure 14](#) and [Figure 15](#). Amongst Grade 7 students 16.1% were below MPLa in mathematics; and more than double that proportion of students (37.9%) performed below MPLa in reading. Just over 64% of students achieved between MPLa and MPLb in

TABLE 30: Sample of Lesotho Grade 7 population

SCHOOL POPULATION	SCHOOL SAMPLE	SCHOOL RESPONSE RATE (%)	STUDENT POPULATION	STUDENT SAMPLE	STUDENT RESPONSE RATE (%)	OVERALL RESPONSE RATE (%)
1,308	219	99	38,926	4,014	98	89

Response rates refer to weighted data of sampled and substitute schools.

TABLE 31: Proportion of Grade 7 students in Lesotho reaching or exceeding MPLa and MPLb in mathematics and reading

Domain	PERCENT REACHING OR EXCEEDING MPLA (LOWER PRIMARY)			PERCENT REACHING OR EXCEEDING MPLB (END OF PRIMARY)		
	All students	Girls	Boys	All students	Girls	Boys
Mathematics	83.9	86.6	80.5	19.7	21.8	17.1
Reading	62.1	66.5	56.7	10.8	12.0	9.4

Only figures shaded in purple are relevant for reporting against the associated SDG.

mathematics, and a little more than half (51.3%) achieved that same benchmark in reading.

Figure 14 and **Figure 15** also illustrate the distribution of mathematics and reading performance amongst Grade 7 students in Lesotho. There is a similar distribution in reading and mathematics. As expected, a small proportion of students performed considerably higher or lower, with most students clustering around the middle. However, the performance of students in reading is clustered around the mean to a greater extent than mathematics.

Contextualising the results - Lesotho

The AMPL-ab results for Lesotho can be better understood by recognising the contexts associated

with student learning. Effect sizes are used to indicate the strength of a relationship between a contextual indicator and performance. **Figure 16** shows that in Lesotho, ‘parental literacy’ had a strong effect on mathematics and reading proficiency. Additionally, ‘wealth’, ‘parental education’, ‘family support’ and ‘nutrition’ all had a strong effect on reading proficiency and a moderate effect on mathematics proficiency. ‘Parental education’ had a moderate effect on both mathematics and reading proficiency. Meanwhile, English being the main language spoken at home, appears to have an inverse effect on mathematics and reading proficiency. This is counter-intuitive but the fact that those speaking English at home represent only 6% of the population suggests a more detailed examination is needed of the context of these learners.

FIGURE 14: Mathematics performance distribution, Lesotho, Grade 7

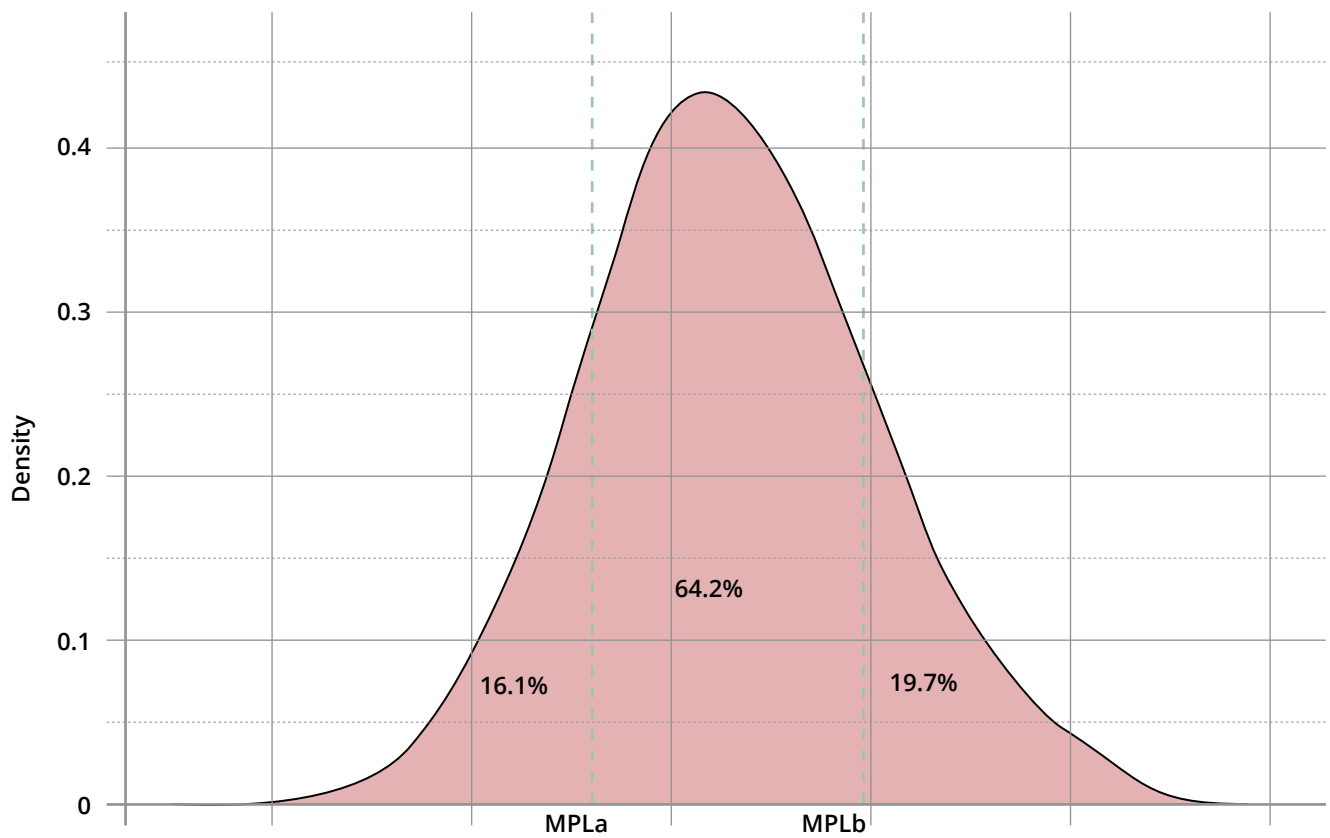
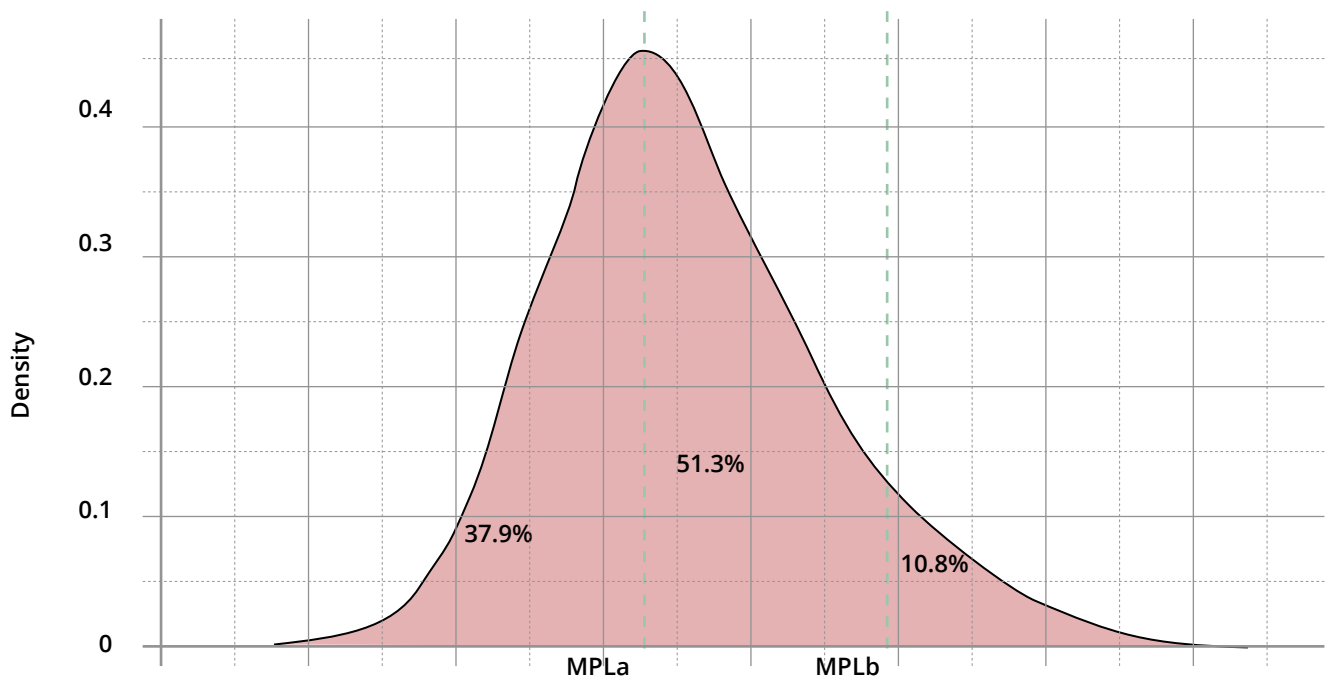
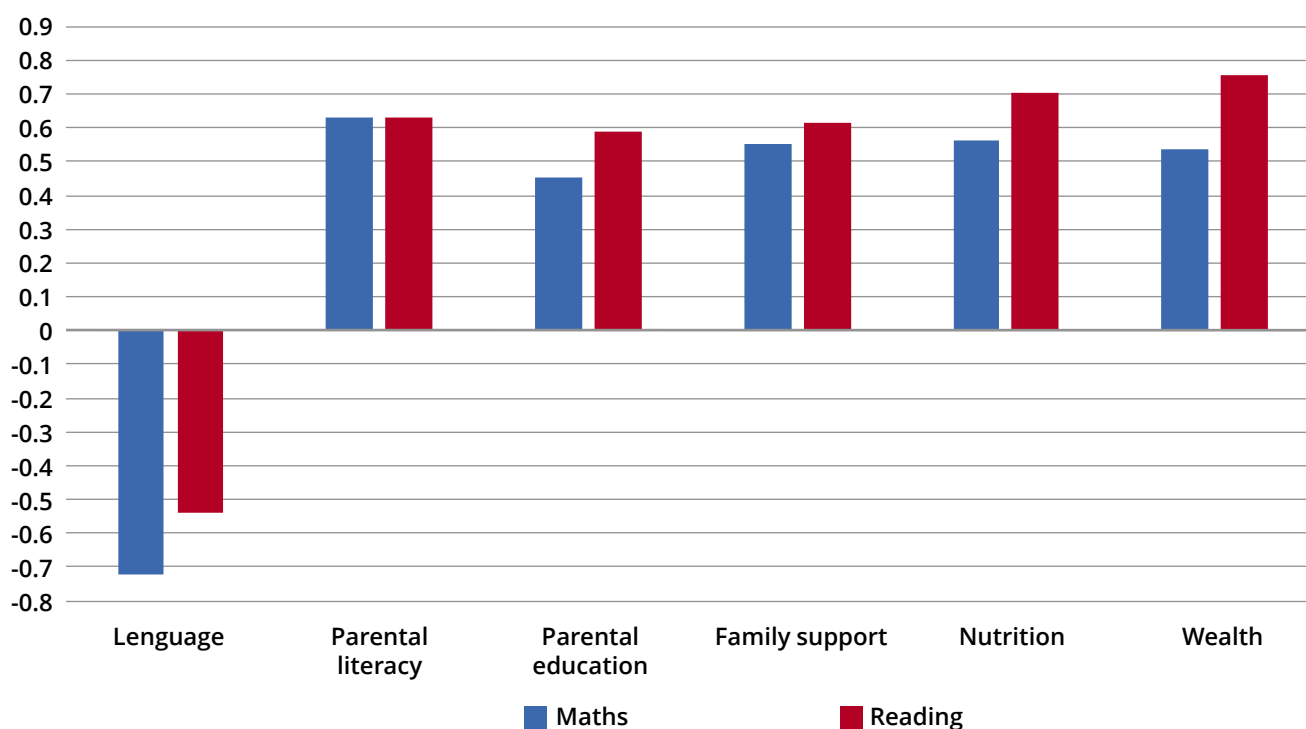


FIGURE 15: Reading performance distribution, Lesotho, Grade 7**FIGURE 16:** Effect sizes of select contextual factors on mathematics and reading outcomes - Lesotho

* Language: Students who spoke the assessment language (i.e. English) at home, compared to those who did not speak the assessment language at home.

ZAMBIA

In Zambia AMPL-a was administered to Grade 4 students, as well as AMPL-a and AMPL-b were administered to Grade 7 students. There are 7 grades in primary school in Zambia, hence AMPL was administered during the final year of lower primary school and at the final year of primary school. In both grades, a representative sample was drawn, which along with the respective response rates, can be seen in [Table 32](#).

Assessment results – Zambia

In Zambia, 14.4% of Grade 4 students in mathematics and 12.7% of Grade 4 students in

reading, reached or exceeded MPLa, the relevant MPL for lower primary school. As for students in Grade 7, 16% in mathematics and 9.7% in reading, reached or exceeded the relevant MPLb. These results can be seen in [Table 33](#). The only statistically significant difference between girls' and boys' proficiency in Zambia, is amongst Grade 7 student proficiency of MPLb, where girls outperformed boys by 2.7 percentage points.

A fuller picture of student proficiency in Zambia can be provided by breaking down these figures according to proportion of students below MPLa, between MPLa and MPLb and above MPLb, as illustrated in [Figure 17](#). In Zambia, 85.6% of Grade 4 students performed below MPLa in mathematics,

TABLE 32: Sample of Zambia Grade 4 and 6 population

GRADE	SCHOOL POPULATION	SCHOOL SAMPLE	SCHOOL RESPONSE RATE (%)	STUDENT POPULATION	STUDENT SAMPLE	STUDENT RESPONSE RATE (%)	OVERALL RESPONSE RATE (%)
4	8,143	250	98	474,406	4,953	95	93
7	8,143	250	97	379,200	4,888	96	93

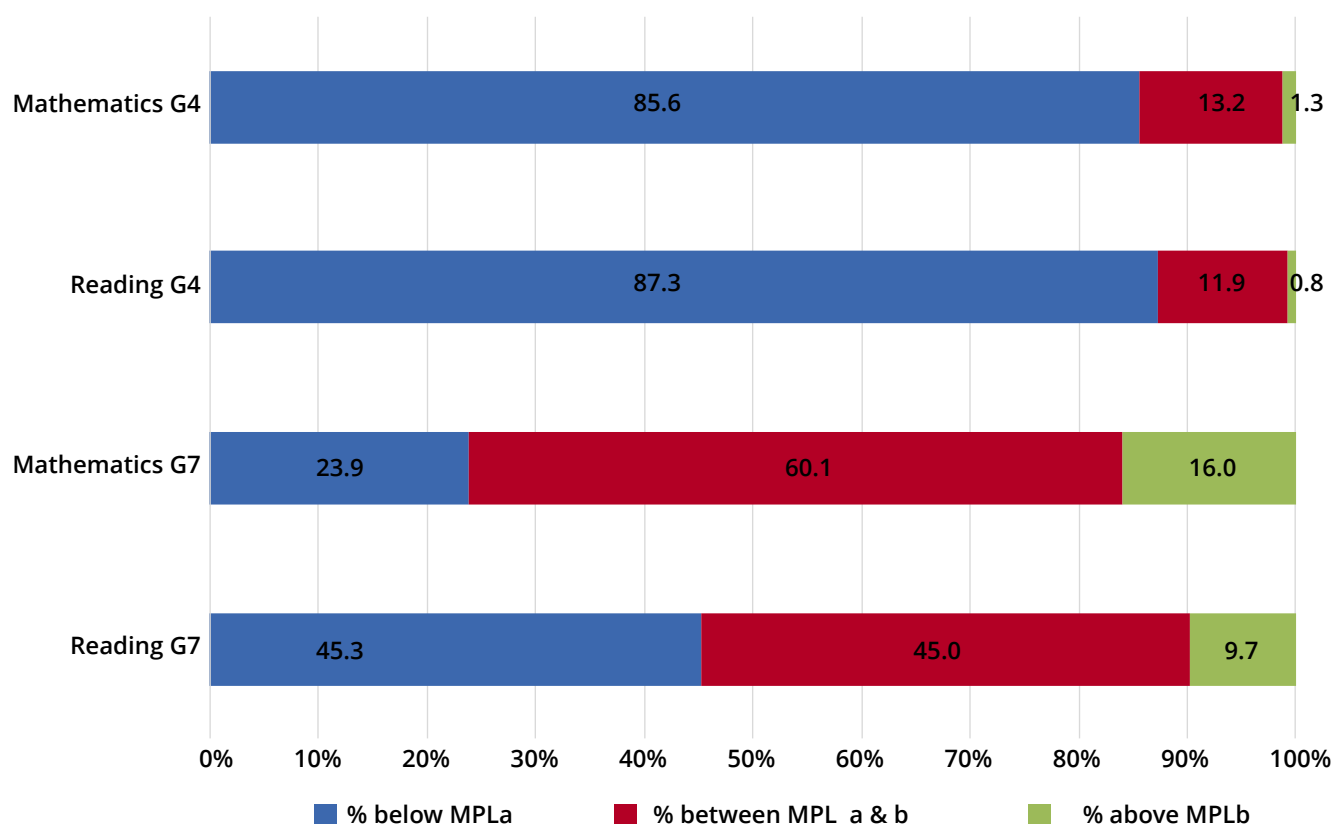
Response rates refer to weighted data of sampled and substitute schools.

TABLE 33: Proportion of Grade 4 and Grade 7 students in Zambia reaching or exceeding MPLa and MPLb in mathematics and reading

DOMAIN	PERCENT REACHING OR EXCEEDING MPLA (LOWER PRIMARY)	PERCENT REACHING OR EXCEEDING MPLB (END OF PRIMARY)
Mathematics Grade 4	14.4	1.3
Reading Grade 4	12.7	0.8*
Mathematics Grade 7	76.1	16.0
Reading Grade 7	54.7	9.7

Due to rounding to one decimal place, some differences described might not exactly accord with the table.

*There are too few observations or no observation to provide reliable estimates.

FIGURE 17: Proportion of Grade 4 and 7 students meeting MPLs in Zambia

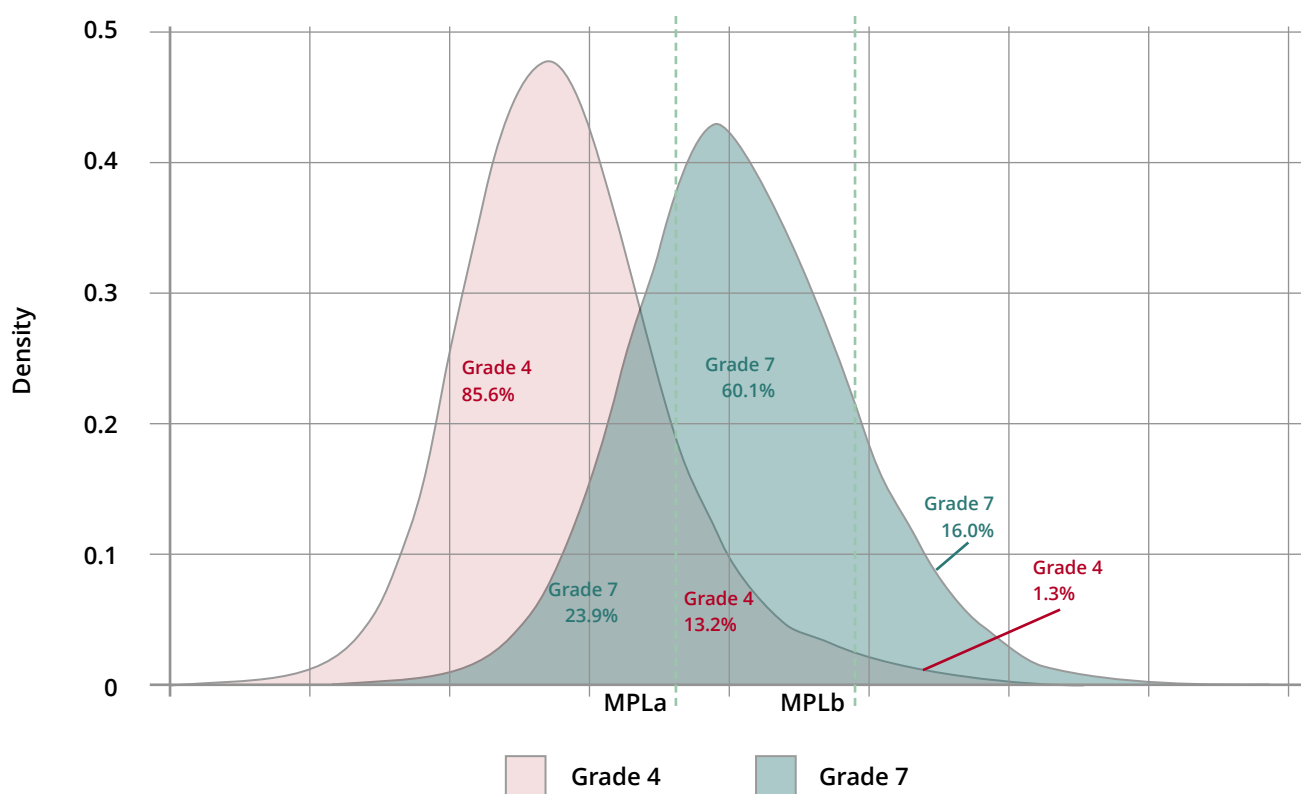
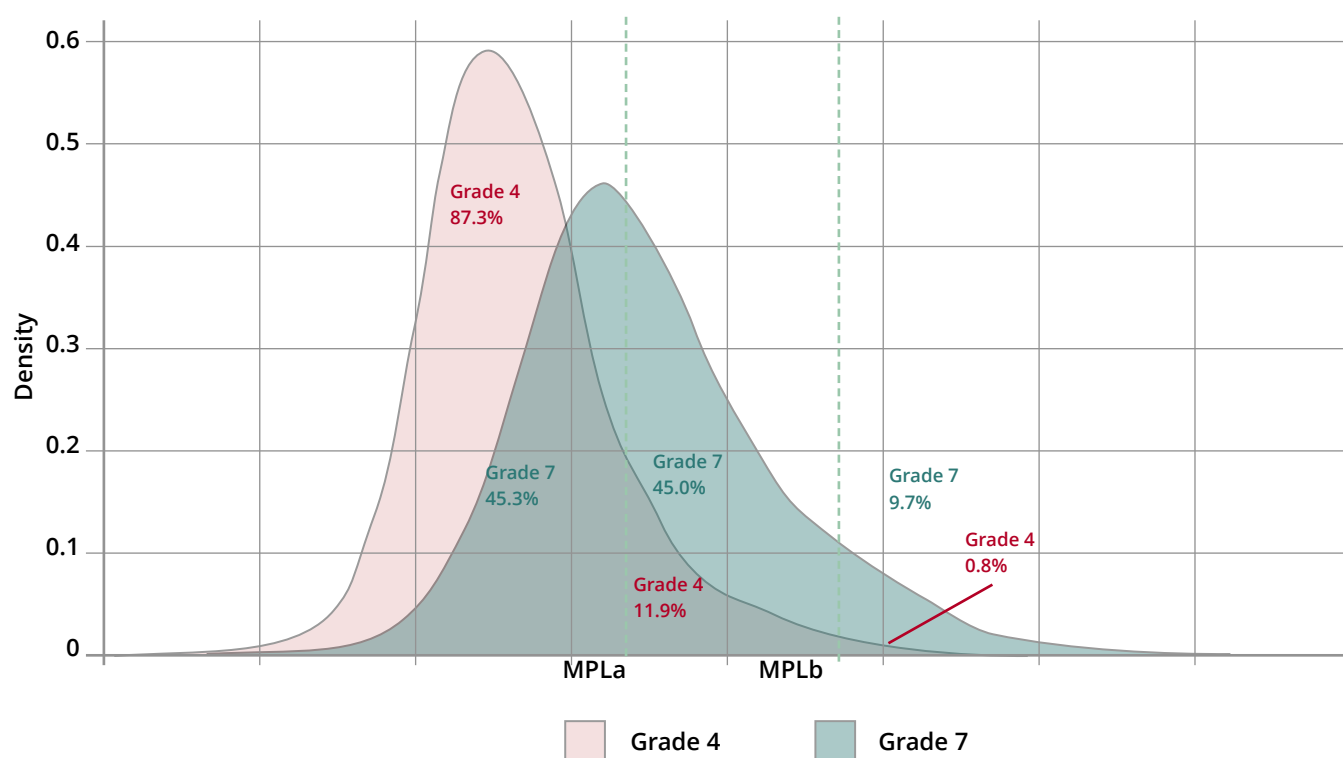
and 87.3% of Grade 4 students performed below MPLa in reading. As for Grade 7 students, most achieved MPLa – over three quarters in mathematics, and just over half of students in reading. Amongst Grade 7 students 60.1% in mathematics, and 45.7% in reading, achieved between MPLa and MPLb.

Figure 18 and **Figure 19** illustrate the distribution of mathematics and reading performance amongst Grade 4 and 7 students in Zambia. In both mathematics and reading it can be seen from the narrower distribution that student proficiency tends to be clustered together in Grade 4, and then spreads further apart. This applies even more so in reading than mathematics. The figures also show that there was a wide range of abilities within each grade. The abilities of learners were not bound by their Grade level. For example, in both mathematics and reading there were substantial numbers of Grade 4 students performing above Grade 7 students and even above the Grade 7 mean. Conversely, there were many Grade 7 students performing below the Grade 4 mean. The overlap in performance between Grade 4 and 7 students is greater in reading than

in mathematics. The means (the tips of the curves) are closer together in reading than in mathematics, indicating that there is less progress occurring between grades 4 and 7 in reading.

Contextualising the results – Zambia

The AMPL-ab results for Zambia can be better understood by recognising the contexts associated with learning outcomes. Effect sizes are used to indicate the strength of a relationship between a contextual indicator and performance. **Figure 20** shows that ‘wealth’ had a strong effect on mathematics and reading proficiency in grades 4 and 7. Speaking English as the main language at home had a strong effect on reading proficiency in both grades 4 and 7, and a moderate effect in mathematics in those grades. Whereas ‘parental literacy’ and ‘parental education’ had a strong effect on proficiency of Grade 7 in reading, but only a moderate effect on other outcomes. Meanwhile, ‘family support’ and ‘nutrition’ had a moderate effect on all proficiency outcomes measured.

FIGURE 18: Mathematics performance distribution, Zambia, grades 4 and 7**FIGURE 19:** Reading performance distribution, Zambia, grades 4 and 7

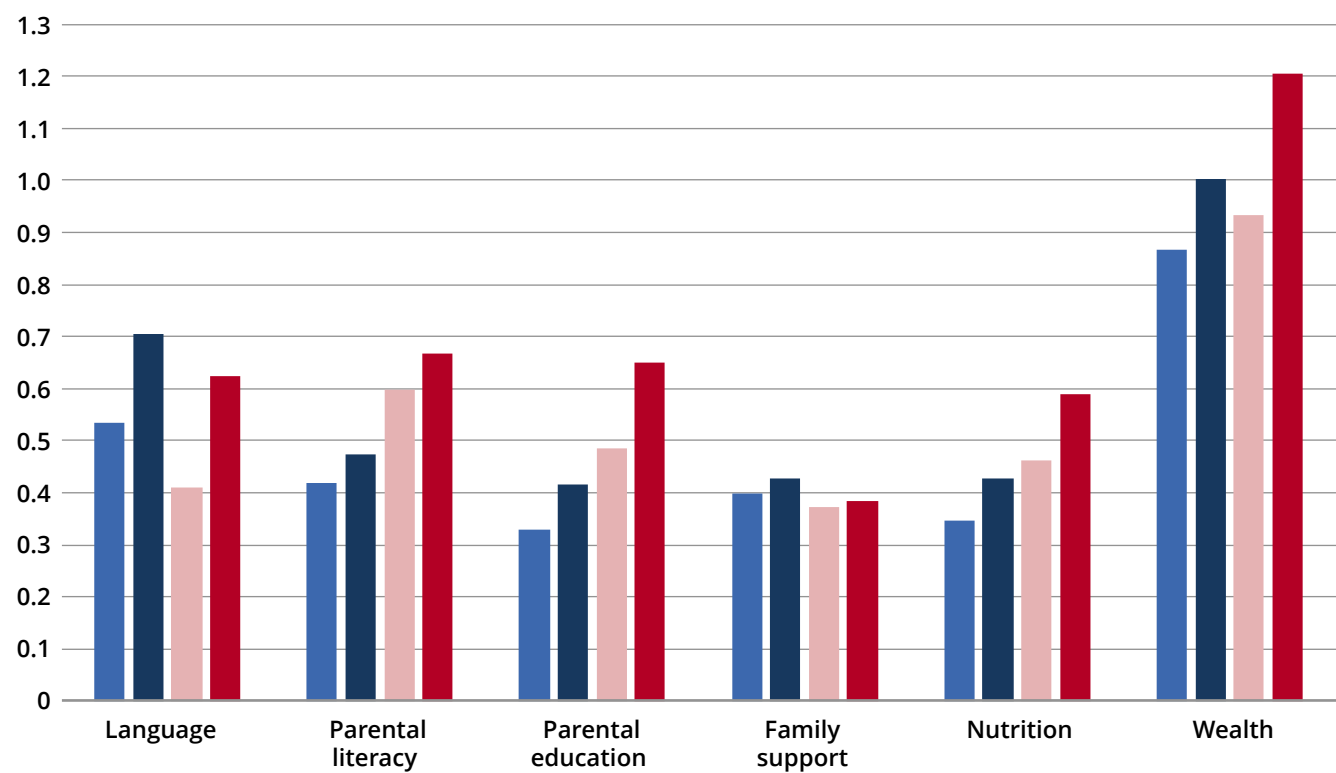
Comparing Zambia’s results for MPLb between 2023 and 2021

The AMPL-b 2023 results are consistent with the AMPL-b 2021 results from the UIS MILO study. The lowest proportion of students met MPLb in Grade 4, then more did so in Grade 5 and the most in Grade 7, as can be seen in Table 34. This means that, on average, students’ abilities are progressing through their schooling. There is a 13.9 percentage point gap in mathematics and a 7.4 percentage point gap in reading between those who met the MPLb in Grade 7 of 2023 and Grade 5 of 2021. These observation is consistent with the expectation that with 2 additional years of

schooling more students would achieve the MPLs at grade 7 than at Grade 5.

The effects of the school lockdowns in Zambia do not appear to be having an impact on proficiencies in reading and mathematics at a population level. This might be because schools were not closed for an extensive period in Zambia, relative to other African countries. In Zambia, full school closures were spread out in 3 periods: 7 weeks in early 2020; 2 weeks in late 2020; and 6 weeks in mid-2021 (UIS, 2022b). Furthermore, spreading out school closures might have disrupted learning less than schools being closed for many consecutive months, as happened in some other African countries.

FIGURE 20: Effects sizes of select contextual factors on mathematics and reading outcomes - Zambia



* Language: Students who spoke the assessment language (i.e. English) at home, compared to those who did not speak the assessment language at home.

TABLE 34: Comparing MPLb between 2023 and 2021

COUNTRY & YEAR	GRADE	% MEETING OR EXCEEDING MPLB MATHEMATICS	% MEETING OR EXCEEDING MPLB READING
Zambia (2023)**	4	1.3	0.8*
Zambia (2021)	5	2.1	2.3
Zambia (2023)	7	16.0	9.7

* There are too few observations to provide reliable estimates. Grade

** Measuring MPLb at Grade 4 was not the main goal of this study and will not be reported against SDG4.1.1b. However it is useful to include here for analytical purposes.

Key findings

This section outlines the key findings of the AMPL-ab study that are presented in the report.

The proportion of students meeting or exceeding the minimum proficiency levels associated with their stage of schooling was low and differed between countries and learning areas.

At the end of lower primary school, 26% of students in The Gambia (Grade 3) achieved the associated MPLa in mathematics and 22% achieved the associated MPLa in reading. In Zambia (Grade 4) 14 % of students achieved the associated MPLa in mathematics and 13% achieved the associated MPLa in reading.

At the end of primary school, 37% of students in Kenya (Grade 6) achieved the associated MPLb for mathematics and 26% achieved the associated MPLb in reading. In Lesotho (Grade 7), 20% of students achieved MPLb in mathematics, and 11% achieved MPLb in reading. In Zambia (Grade 7) 16% of students, achieved the mathematics MPLb and 10% achieved the associated MPLb for reading.

More students were meeting or exceeding minimum proficiency levels in mathematics than in reading at the end of lower primary and the end of primary schooling.

In all populations studied, more students demonstrated they were at or above minimum proficiency levels in mathematics than in reading. The largest difference was in Kenya (Grade 6) with 11 percentage points more students who achieved MPLb in mathematics than reading at the end of primary school.

This finding can potentially be impacted by an interaction of students' language of instruction, the language of the assessment and students' language spoken at home. In all the AMPL-ab countries, English is officially the language of instruction in upper primary school, whilst local languages are widely used in lower primary school. However, for this study, the end of lower grade populations in the Gambia and Zambia

were defined as students in schools where English was the language of instruction (for that grade). International evidence, including from Africa, indicates that children have better learning outcomes when taught in their mother tongue, especially in the early years (Ball, 2011; Trudell, 2016). This applies even more so in reading than mathematics, where there is a lower level of natural language abilities required to undertake mathematics exercises than reading exercises (Spaull, 2016). This is consistent with findings from the MILO study, where students who spoke the language of instruction at home showed higher proficiency than those who did not, with the effect more pronounced on reading than mathematics (UIS, 2022a). This does not undermine using a common language in the later years, as being taught in one's mother tongue in the early years can enhance one's later acquisition of a second language (Longden, 2013).

Girls and boys demonstrated similar levels of proficiency in mathematics, but girls generally outperformed boys in reading.

Girls and boys demonstrated similar levels of proficiency in mathematics, except for Lesotho (Grade 7), where more girls (22%) than boys (17%) achieved MPLb at the end of primary school education.

At the end of lower primary school, in The Gambia significantly more girls (23%) than boys (20%) achieved MPLa in reading. At the end of primary school, more girls than boys achieved the associated MPLb in Lesotho (12% girls and 9.4% boys) and in Zambia (11% girls and 8.3% boys).

These results are consistent with international evidence. Girls in primary school tend to outperform boys in reading, whereas, there tends to be less difference between genders in primary school mathematics (Ahmed et al., 2023; Baye & Monseur, 2016; Fonseca et al., 2023; Oberleiter et al., 2023; Thomas et al., 2022).

There was a broad spread of proficiency amongst students within grades.

The AMPL-ab test design allowed to measure students' attainment of both MPLs a and b, irrespective of the students' grade. At the end of lower primary, a small proportion of students meeting MPLa – the level associated with this stage of schooling, also achieved MPLb – the level associated with the end of primary school: 4% of students in The Gambia (Grade 3) achieved MPLb in mathematics, and 1% achieved MPLb in reading. In Zambia (Grade 4), 1% of students achieved MPLb in mathematics².

At the end of primary school, there was a considerable proportion of students not meeting MPLa – the minimum proficiency level associated with lower primary school. According to the overall findings, this proportion was higher in reading than in mathematics: 22% of students in Kenya (Grade 6) performed below MPLa in reading, and 11% in mathematics; 38% of students in Lesotho (Grade 7) performed below MPLa in reading, and 16% in mathematics; and in Zambia (Grade 7) 45% of students performed below MPLa in reading, and 24% in mathematics.

Students at the end of primary school achieve higher levels of proficiency in mathematics and reading than students at the end of lower primary school.

As can be reasonably expected, the AMPL-ab study shows that students in the later stages of

schooling have higher proficiency in mathematics and reading, on average, than students in the early stages of schooling. This is evident both when comparing between countries, and within countries – demonstrating that students' learning progresses as they move through the education system.

The test design of AMPL-ab (see [Table 3](#)) linked assessment material from AMPL-a and AMPL-b which allows a direct comparison of learning outcomes between the lower primary and end of primary populations in Zambia, where a larger proportion of students in Grade 7 achieved MPLa and MPLb than in Grade 4. Zambia was the only country that assessed at both the end of lower primary and end of primary school grades in this study.

Furthermore, when comparing these results for Grade 6 students in Kenya, to the 2021 MILO study results for Kenya in Grade 7, it can be seen that students proficiency is higher in the later year of school. These finding reinforce the internal consistency of the AMPL measurement.

2. There were too few observations to provide reliable estimates for reading.

Conclusion

By measuring the performance of students at the end of lower primary and end of primary school, this study provides evidence about how students are performing against the global Minimum Proficiency Levels in reading and mathematics. All the countries that participated in this study enhanced their ability to report on SDG indicator 4.1.1. This is through developing the capacity to administer large scale assessments, according to rigorous technical standards. This enables countries to attain high quality evidence to measure student proficiency.

The development of the AMPL-a tool is a significant milestone for global education monitoring. A particular innovation is the measurement of listening comprehension and decoding skills using pre-recorded audio stimuli, which along with other elements of MPLa, can now be reported against SDG 4.1.1a.

This study has shown that administering the AMPL-a and AMPL-b tools together provides a robust measure of the proportion of students meeting SDG 4.1.1 'a' and 'b'. The AMPL tools can be applied in a wide range of education systems and contexts, and

can be translated into other languages, supporting specific monitoring and reporting needs. AMPL can be administered as a standalone assessment – as with this study, or it can be integrated into existing national or regional assessments, as was done with the UIS MILO study.

This study provides important baseline data about the proportion of students reaching MPLa for all participating countries, and MPLb for The Gambia and Lesotho. This baseline data can be used to continue monitoring countries' progress with achieving SDG 4. In the case of Kenya and Zambia, which participated in the MILO study (UIS, 2022a), this AMPL-ab study supports the tracking over time of student proficiency in regard to MPLb.

By developing tools targeting SDG indicator 4.1.1c, students' learning progress throughout the different stages of schooling could be monitored up to the end of lower secondary school. Further insights for policy and practice can be gained by examining the results alongside Minimum Proficiency Levels: Described, unpacked and illustrated (ACER, 2022).

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APPENDIX A:

Validating the MPLs

To enable robust and valid reporting of student proficiency against the MPL requirements, a systematic approach is required to establish and validate cut scores that correspond to the end of lower primary MPLa requirements, for each of reading and mathematics.

The MPL 'a', 'b' and 'c' cut scores for reading and mathematics were established on the Learning Progressions Scale (LPS) with an international standard setting exercise undertaken in 2022. The MPLb cut score was also established on the AMPL scale in 2021 using data collected in the MILO project. For AMPL-ab, the location of the MPL 'a' and 'b' cut scores on the AMPL scale were first established using the MPLb cut score from MILO and the difference between MPLb and MPLa in logits as established in the international standard setting exercise. A pairwise comparison method (PCM) study was then used to confirm and validate the locations of those cut scores.

THE PAIRWISE COMPARISON EXERCISE

The PCM exercise was undertaken through the following 4 stages.

1. **PCM training (Workshop 1):** The training provided participants with an understanding of the concept of a learning progression and shared the relevant LPS for the reading and mathematics domains. The PCM activities were explained to participants, including a demonstration of the online system (ACER Signum) for making judgements. The training was conducted via an online workshop.
2. **Undertaking the comparative judgements:** After the training, participants were required to independently complete their judgements within 48 hours. The online system presented judges with pairs of items made up of an item from the assessment and/or an item already aligned to the LPS. For each pair of items, participants were required to answer the question – 'Which of the two items presented is more difficult?'
3. **Analysing the outcomes:** The judgements provided by all the participants formed a dataset that technical experts from ACER analysed to locate AMPL items on the LPS scale, providing validation of the cut-points.
4. **Outcomes session (Workshop 2):** Participants were reconvened in a plenary session to share their experiences of the process and provide feedback.

ANALYSIS

Items and Judges

The pairwise comparison method was used to equate the LPS with the AMPL scale for both reading and mathematics. The pairwise exercise comprised 72 items from the international standard setting LPS and 41 AMPL items estimated on the AMPL scale. For maths, there were 75 items with estimated difficulty on the LPS, and 36 items estimated on the AMPL scale. Fifteen judges participated in maths and 18 in reading.

Pairwise Scale

Judgements on the items were completed in ACER Signum and the final datasets were downloaded and cleaned. The pairwise analysis was undertaken using ACER ConQuest using the Bradely-Terry-Luce Model. The estimates for each item included in the model for each of reading and mathematics were estimated difficulties in logits determined on the pairwise scale

for each domain. The fit of both items and judges were assessed, those showing misfit were removed and the analysis was run for a second time without those items and judges to establish final locations on the pairwise scale for the remaining items.

Equating

With the MPLa and b cut scores located on the LPS and the cut score required on the AMPL Scale it was necessary to equate both the LPS and AMPL Scale with the Pairwise Scale which contained items common to each. To equate the LPS with the Pairwise Scale the item estimates for the common items were compared and outliers were detected using a Robust-Z approach - that is to identify items with significantly different scale locations between the 2 scales. Items showing DIF were removed, and the procedure was repeated until no items with DIF remained.

Next, the mean and standard deviation of the LP item estimates and the means and standard deviation of the Pairwise item estimates are compared, and the differences are calculated. The differences in the mean difficulties represent the shift required to move an individual estimate from one scale to the other, and a transformation can be applied. At this stage, the cut scores for mathematics and reading on the LPS were equated to the Pairwise Scale using this mean shift calculation.

Finally, it was necessary to equate the Pairwise Scale with the AMPL Scale to find the location of those cut

scores for the AMPL. The same procedure was used as for the LP/Pairwise equating and the MPLa and MPLb locations on the Pairwise Scale were equated to the AMPL Scale.

RESULTS OF PCM

As can be observed in Table 35, the location of the MPLa and MPLb cut scores on the AMPL scale is no more than 0.1 logits different, when comparing the locations derived from the PCM and the locations established from a combination of the data from the MILO study and the international standard setting exercise. This close result provides evidence that the cut-scores on the AMPL scale are a valid and reliable indicator of the proficiency level required in reading and maths to meet the MPL benchmarks.

ENGAGEMENT AND FEEDBACK OF PCM PANELLISTS

To undertake the PCM, subject matter experts and practitioners were required from each participating country. For subject matter experts, it is preferable that participants have experience in national or standardised assessment development, curriculum development, or teacher training. Expert practitioners were also invited, particularly those with teaching experience in primary schools.

TABLE 35: MPL locations on the LPS and AMPL Scale (in Logits) by Method

DOMAIN	MPL	LPS CUT SCORE	AMPL CUT SCORES (COMMON ITEM EQUATING FROM AMPL TO MILO)	AMPL CUT SCORES (PCM EQUATING)
Mathematics	MPLa	-3.3	-1.76	-1.74
Mathematics	MPLb	-1.6	-0.06	-0.04
Reading	MPLa	-4.7	-0.78	-0.89
Reading	MPLb	-3.0	0.92	0.81

AMPL-ab countries were asked to engage the participation of 5 participants for each of mathematics and reading. The aim was to obtain a minimum of 15 participants across counties for each domain of mathematics and reading. This was achieved, with 17 panellists in mathematics and 15 panellists for reading.

The AMPL-ab implementing countries were responsible for paying their panellists, which was negotiated with the UIS.

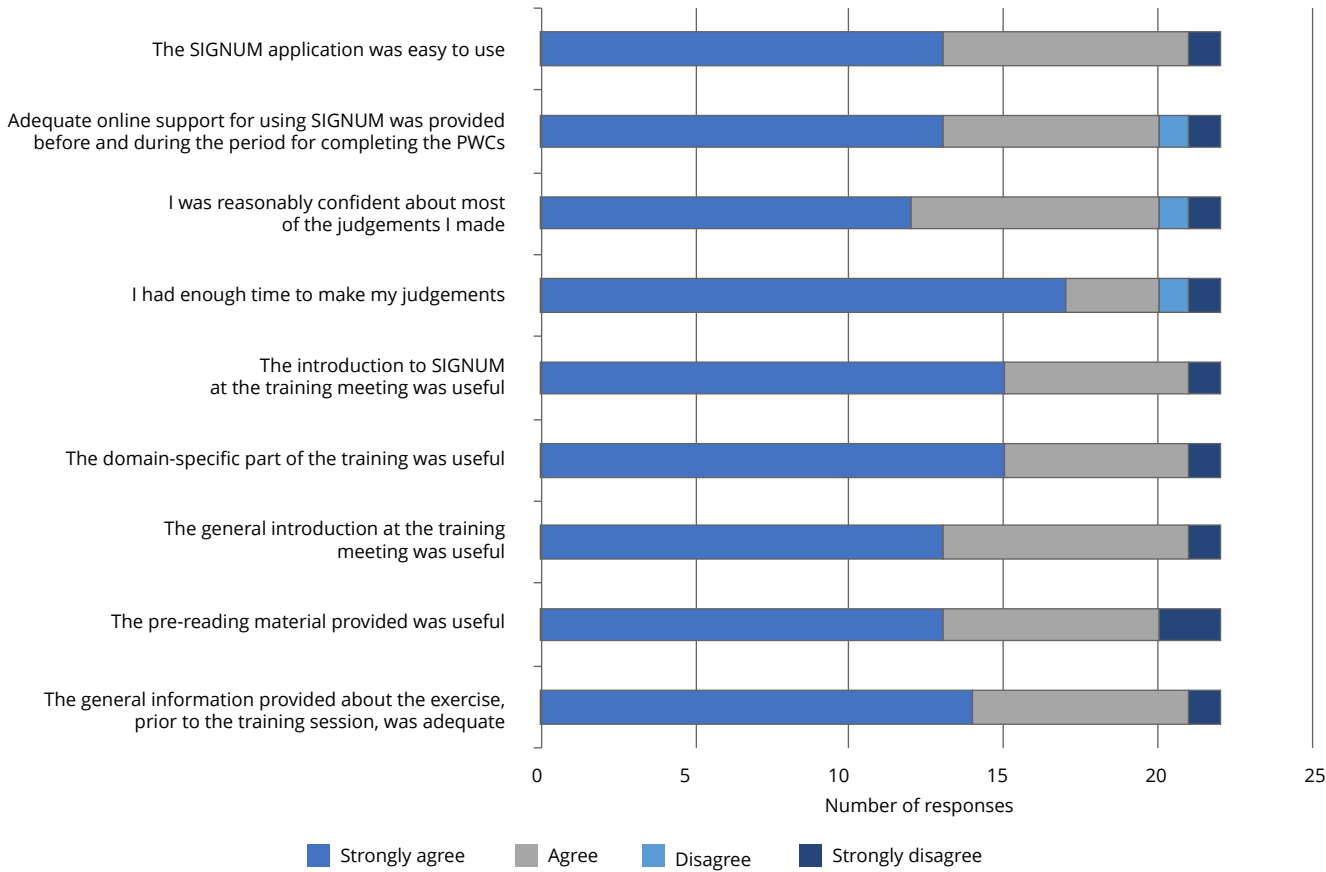
After the Pairwise exercise, participants were invited back to a one hour session. In that session, ACER reported back the level of engagement in the Exercise and outlined the next steps in regard to analysis and reporting. Furthermore, it was an opportunity for participants to share their experiences with each other about undertaking the exercise , and provide feedback to ACER. This was also supplemented by an online survey, sent to participants prior to this session.

Respondents who participated in the pairwise comparison exercise were overwhelming positive about the preparation, training, support and conduct of the exercise. Every person who completed the survey, remarked that they would participate again in a similar exercise. Furthermore, many participants appreciated the opportunity to learn about and be part of an activity related to supporting measuring learning proficiency. For example, one participant wrote:

I am really grateful for the opportunity to be part of this exercise and to make contributions to the improvement of the state of literacy and numeracy ... in addressing Sustainable Development Goal 4 that aims to provide young people with quality education.

The rating that participants gave in response to statements about the Exercise can be seen in **Figure 21**

FIGURE 21: Panelist ratings of elements of the Pairwise Comparison Exercise



APPENDIX B:

Decoding and listening comprehension items

This appendix provides more detail about the decoding and listening comprehension items developed for the AMPL-a, specifically in regard to the relative difficulty of the items.

Very easy reading items

Contrary to expectations, the 3 easiest AMPL items falling well below MPLa were reading comprehension items. After this, reading and decoding items were intermixed in terms of difficulty along with 2 listening comprehension items for the 20 easiest reading items.

Reading comprehension. These were mainly single word reading such as matching a word to a picture. There were 9 very easy items.

Decoding. This included all 5 of the audio-delivered decoding items that required identifying a written word after hearing it as well as 4 of the 5 decoding items that required identifying the missing letter in a word.

Listening comprehension. Only 2 of the 9 listening items were very easy. Both required retrieving explicitly stated information given at the start of a factual text.

Easy reading items

The next 20 items in terms of difficulty consisted of 4 listening items, the one remaining decoding item and 15 reading comprehension items.

Reading comprehension. These items mainly required matching a sentence to a picture and retrieving information from a single sentence or from the first, or a very prominent sentence in a considerably longer text. A few items required making very simple, predictable inferences across adjacent sentences.

Decoding. The remaining decoding item required identifying the letter that completed a blend.

Listening comprehension items. Three items required making interpretations and retrieving information from a story and one required making an interpretation from a factual text.

Reading items above MPLa

Reading comprehension items continued to develop in difficulty as they began to address skills that were above MPLa.

There were no decoding items above MPLa.

There were 3 listening comprehension items above MPLa. Two required interpreting and retrieving information from a story and one required identifying the main idea of a factual text.

APPENDIX C:

Participant engagement and feedback

Participants from the national centres were invited to share with each other their experiences of program implementation, provide feedback to the technical partner – ACER – as well as discuss the impact that participation in AMPL-ab is expected to have on their national assessment system. A Participant Forum, accompanied by an online survey, took place on Wednesday 9 August. National Centre team members from India, Kenya, Lesotho and Zambia participated. The Forum enabled participants to learn lessons from each other, as well as supporting future large scale learning assessments.

Forum participants were invited to share and discuss their experience in relation to themes of AMPL-ab implementation. This appendix summarises key points that were discussed at the Forum along with some direct quotes from the participants. The direct quotes are attributed to the country of the national centre that the speaker belonged to, rather than referring to their name, to maintain their anonymity.

IMPACT OF PARTICIPATION IN AMPL-AB ON NATIONAL ASSESSMENT SYSTEMS

Forum participants shared their views on how their participation in AMPL-ab would impact their national assessment systems. Participants communicated that their participation in AMPL was “very relevant” to, and would positively impact, their national assessment system. For example, it was stated that:

Our national assessments are going to benefit a lot in future from the experience that we have gained from participating in AMPL (Lesotho)

Reporting against SDGs

Participants from Kenya and Lesotho reported that participating in AMPL-ab helped to demonstrate to policy makers the importance of doing things “the

correct way”, whereby reliable data is collected to report against the SDGs. Furthermore, it was said that information drawn from AMPL-ab will be used for making better decisions on education policies.

Data management and moving towards computer-based assessment

Participants from multiple countries said that the knowledge and experience acquired through the use of the AMPL-ab data management software, Maple, will inform how to improve data management of the national assessment. Specifically, it was explained that the training and support that was received in undertaking data management, resulted in enhanced data security, which will be maintained into the future.

A participant from Zambia reported that Maple was particularly useful for monitoring the quality of data entry, and therefore they are considering how they can improve their data management system for their national assessment. Kenya also appreciated Maple and their ICT team is working on integrating all processes from sampling to data processing and possibly analysis into their own systems. One participant stated that:

Some of the skills that we have acquired will be able to inform the different strategies that are currently being put in place by our ICT team to shift into e-assessment. (Kenya)

The experience of using Maple will inform the technical aspects of strategies to move from paper-based to computer-based national assessment. It was suggested that “next time, let’s us E-assessment because our learners are digitally literate”. Moreover, some countries are already implementing computer-based assessment, and observed that digital data management supports this:

We are going to do e-assessments, it’s going to be the first time national assessments are being

done this way and most of the learning we are going to be borrowing from the experiences of AMPL (Kenya)

Furthermore, it was remarked that the laptops that were acquired via participation in AMPL-ab will enhance IT capacity – “using laptops purchased enabling more efficient data management in national assessment.”

Sampling

Participants said that they would apply knowledge acquired through AMPL-ab about sampling procedures to the national assessment. A participant from Kenya explained that their capacity to undertake sampling was enhanced through the interaction with the ACER sampling team to prepare their school sample. They said that they were able to ask the ACER sampling team questions about their national assessment sample, and the ACER team took time to guide the Kenyan team and explain why certain things had to be a certain way.

Furthermore, it was observed that schools that were sampled, benefited from participation in AMPL-ab, as seen in the following remark – “School sampling was well done, communication to the school was perfect and schools really loved the exercise”.

Listening comprehension assessment

The processes followed in AMPL for the listening comprehension portion of the assessment were helpful for a number of countries. For example, previously in Kenya, the teacher has generally read listening comprehension test items aloud, but for AMPL, listening to a recording was received so well by teachers and test administrators, that they are going to reconsider how they run their national listening comprehension assessments.

Lesotho said that the audio assessment was appreciated by students as well as teachers, and that they found it an interesting experience. It also allowed them to acquire a set of speakers which the Examinations Council will be able to use into the future. Regarding implementing future listening and comprehension assessments, it was commented:

I think that [the listening comprehension component] is going to strengthen our national assessment in the future, in the sense that we have also learned that we can test other

skills that we have until now been overlooking (Lesotho).

Test development

It was remarked that participating in AMPL-ab provided knowledge and skills to improve national assessment instruments. Furthermore, that it will be useful to re-apply the AMPL assessment tools to monitor the progress of lower primary and end of primary school students.

INSTRUMENT PREPARATION

Forum participants shared their experience of preparing assessment instruments. This theme includes reviewing and adapting test booklets and questionnaires to suit their countries' context.

Production of localised audio recording

In AMPL-ab, participating countries were offered an option to produce audio recordings in a local accent for the listening comprehension component of the assessment. The use of localised audio recording was regarded as good practice by the countries and the teachers and students appreciated listening to recordings in a familiar accent. For instance, it was remarked that:

We had an opportunity to look for the voice artists and ... we did the recordings. They appreciated the fact that it's best when you give [the test in the] country accent that tests the knowledge, skills and attitudes that this child has, is actually based on the correct accent (Kenya).

Kenya suggested that countries should have plenty of time to get the voice recordings done, because it is very important that students be able to listen to their own accents.

Resources

Participants expressed that the resources ACER provided, such as guidelines, were very helpful for preparing assessment instruments. For example, one participant commented that:

The documentation that was provided for us really went a long way towards helping us understand exactly how to get started and how

to go about the whole project from start to finish (Lesotho).

Manual Preparation

Forum participants discussed their experience of preparing school-level manuals. It was suggested that the school-level manuals were helpful for all the stakeholders who were involved in the test administration, as seen in the following comment:

The manuals were very useful and the kind of information that they distilled to all the different people involved with the assessment... It was a good, structured material (India).

TEST ADMINISTRATION

Training

Forum participants shared their experience of training test administrators. For example, in Kenya, the ‘Train the Trainer’ approach worked well for training test administrators. The NPM trained the National Centre team members to be the regional coordinators, who would go on to the regions to train test administrators. This approach enabled the training to be manageable and ensured the quality of the training for test administrators.

Data Collection

Forum participants shared their accounts of how the data collection went during the test administration. Positive feedback was received from the assessment participants in India, as follows:

We received positive feedback from all our state participants... One interesting thing that happened was that most of them ... said that the students actually enjoyed taking the test, which I think is a new kind of feedback for assessment of this nature (India).

DATA MANAGEMENT

Forum participants discussed their experience of completing data management tasks, including: the Maple workshop, working with schools, undertaking within-school sampling, producing labels, and carrying out data entry.

Maple software

In general, forum participants provided positive feedback about the use of ACER Maple software for data management, along with associated resources, training opportunity, and support service.

“The Maple Workshop was very helpful. And... the data management manual was very helpful. It was clear, so it was user friendly” (Lesotho).

Planning

Participating in AMPL-ab required significant planning and logistical capacities, which was enhanced through participation. Kenya managed the challenge of working with schools by planning the recruitment and training of data administrators, along with data entry activities. This was in addition to arranging approvals and venue hire for all these activities based on the due date for data submission. Kenya summarised their positive experience in data management as follows:

We really enjoyed [working on data management tasks] and we look forward to similar experiences (Kenya).

CAPACITY DEVELOPMENT

Participants from the national centres reported that the capacity of countries to implement large-scale national and international assessment was enhanced. Capacity was developed through learning via doing – with guidance and support – as well as more formal capacity development.

Participants’ capacity to undertake national assessment was developed through participating in the implementation process, illustrated by the following comment – “Capacity building was well done. All documents were availed and all members had a better understanding of the whole process”.

Regarding the formal component, participants shared their views about the Foundations in Applied Measurement in Education (FAME) courses. Sharing the content of capacity development courses proved valuable for participants. Zambia particularly appreciated the fact that they could bring other colleagues from the Examinations Board to the sessions so that the benefits could be spread.

They said that although the course content was challenging, having course content and session recordings available enabled them to work through it at their own pace. A participant from Zambia commented that:

The capacity building sessions ... were very helpful and it's something that I think should be encouraged going forward. We look forward to having more of such sessions so that ... capacity is built for the Zambian team (Zambia).

Another way in which capacity was developed was through knowledge sharing between countries, as seen in the below remark:

the experiences that we have shared that we have learned from other countries – the way they administered the test, test administration – we are going to see how to borrow the same lessons and inform our implementation of national assessments as a country (Kenya)

APPENDIX D:

Supplementary proficiency results tables

TABLE D 1: Proportions of students achieving the MPL for mathematics standard errors

COUNTRY	GRADE	PERCENT MEETING OR EXCEEDING MPLA		PERCENT MEETING OR EXCEEDING MPLB	
		Percent	SE	Percent	SE
The Gambia	3	25.8	(1.28)	3.6	(0.69)
Zambia	4	14.4	(1.19)	1.3	(0.50)
Kenya	6	88.6	(0.78)	36.9	(1.40)
Lesotho	7	83.9	(1.16)	19.7	(1.64)
Zambia	7	76.1	(1.27)	16.0	(1.35)

TABLE D 2: Proportion of girls and boys achieving the MPLa for mathematics with standard errors

COUNTRY	GRADE	GIRLS		BOYS		DIFFERENCE	
		Percent	SE	Percent	SE	Percent	SE
The Gambia	3	27.0	(1.56)	24.4	(1.50)	-2.6	(1.72)
Zambia	4	13.9	(1.28)	15.1	(1.42)	1.2	(1.29)
Kenya	6	89.6	(0.91)	87.6	(0.95)	-2.1	(1.03)
Lesotho	7	86.6	(1.30)	80.5	(1.58)	-6.1	(1.69)
Zambia	7	75.4	(1.47)	76.9	(1.40)	1.4	(1.34)

Statistically significant differences are in bold.

TABLE D 3: Proportion of girls and boys achieving the MPLb for mathematics with standard errors

COUNTRY	GRADE	GIRLS		BOYS		DIFFERENCE	
		Percent	SE	Percent	SE	Percent	SE
The Gambia	3	3.9	(0.88)	3.3	(0.79)	-0.5	(0.94)
Zambia	4	1.3*	(0.47)*	1.3*	(0.60)*	0.0	(0.42)
Kenya	6	37.8	(1.83)	36.0	(1.59)	-1.9	(1.95)
Lesotho	7	21.8	(1.92)	17.1	(1.79)	-4.7	(1.78)
Zambia	7	15.9	(1.57)	16.2	(1.53)	0.3	(1.54)

Statistically significant differences are in bold.

* There are too few observations to provide reliable estimates.

TABLE D 4: Proportions of students achieving the MPL for mathematics standard errors

COUNTRY	GRADE	BELOW MPLA		BETWEEN MPL A & B		MEETING OR EXCEEDING MPLB	
		Percent	SE	Percent	SE	Percent	SE
The Gambia	3	74.2	(1.28)	22.2	(1.00)	3.6	(0.69)
Zambia	4	85.6	(1.19)	13.2	(0.99)	1.3	(0.50)
Kenya	6	11.4	(0.78)	51.6	(1.16)	36.9	(1.40)
Lesotho	7	16.1	(1.16)	64.2	(1.44)	19.7	(1.64)
Zambia	7	23.9	(1.27)	60.1	(1.45)	16.0	(1.35)

TABLE D 5: Proportion of girls and boys achieving the MPL for mathematics with standard errors

COUNTRY	GRADE	GIRLS						BOYS					
		Below MPLa		Between MPL a & b		Meeting or exceeding MPLb		Below MPLa		Between MPL a & b		Meeting or exceeding MPLb	
		Percent	SE	Percent	SE	Percent	SE	Percent	SE	Percent	SE	Percent	SE
The Gambia	3	73.0	(1.56)	23.1	(1.23)	3.9	(0.88)	75.6	(1.50)	21.1	(1.30)	3	(0.79)
Zambia	4	86.1	(1.28)	12.6	(1.18)	1.3*	(0.47)*	84.9	(1.42)	13.8	(1.22)	1*	(0.60)*
Kenya	6	10.4	(0.91)	51.7	(1.57)	37.9	(1.83)	12.4	(0.95)	51.5	(1.32)	36	(1.59)
Lesotho	7	13.4	(1.30)	64.8	(1.82)	21.8	(1.92)	19.5	(1.58)	63.4	(1.80)	17	(1.79)
Zambia	7	24.6	(1.47)	59.6	(1.61)	15.9	(1.57)	23.1	(1.40)	60.7	(1.91)	16	(1.53)

* There are too few observations to provide reliable estimates.

TABLE D 6: Proportions of students achieving the MPL for reading with standard errors

COUNTRY	GRADE	PERCENT MEETING OR EXCEEDING MPLA		PERCENT MEETING OR EXCEEDING MPLB	
		Percent	SE	Percent	SE
The Gambia	3	21.5	(1.37)	1.0	(0.28)
Zambia	4	12.7	(1.10)	0.8*	(0.41)*
Kenya	6	78.4	(1.22)	25.5	(1.31)
Lesotho	7	62.1	(2.01)	10.8	(1.56)
Zambia	7	54.7	(1.62)	9.7	(1.14)

* There are too few observations to provide reliable estimates.

TABLE D 7: Proportion of girls and boys achieving the MPLa for reading with standard errors

COUNTRY	GRADE	GIRLS		BOYS		DIFFERENCE	
		Percent	SE	Percent	SE	Percent	SE
The Gambia	3	23.1	(1.66)	19.6	(1.50)	-3.4	(1.62)
Zambia	4	13.0	(1.29)	12.3	(1.32)	-0.7	(1.39)
Kenya	6	81.8	(1.29)	75.1	(1.57)	-6.7	(1.55)
Lesotho	7	66.5	(2.21)	56.7	(2.29)	-9.7	(2.02)
Zambia	7	55.7	(1.89)	53.6	(1.84)	-2.1	(1.83)

Statistically significant differences are in bold.

TABLE D 8: Proportion of girls and boys achieving the MPLb for reading with standard errors

COUNTRY	GRADE	GIRLS		BOYS		DIFFERENCE	
		Percent	SE	Percent	SE	Percent	SE
The Gambia	3	1.2*	(0.42)*	0.9*	(0.33)*	-0.3	(0.51)
Zambia	4	0.7*	(0.38)*	0.8*	(0.50)*	0.0	(0.31)
Kenya	6	27.2	(1.59)	23.9	(1.54)	-3.3	(1.73)
Lesotho	7	12.0	(1.75)	9.4	(1.57)	-2.7	(1.21)
Zambia	7	11.0	(1.40)	8.3	(1.14)	-2.7	(1.19)

Statistically significant differences are in bold.

* There are too few observations to provide reliable estimates.

TABLE D 9: Proportions of students achieving the MPL for reading standard errors

COUNTRY	GRADE	BELOW MPLA		BETWEEN MPL A & B		MEETING OR EXCEEDING MPLB	
		Percent	SE	Percent	SE	Percent	SE
The Gambia	3	78.5	(1.37)	20.5	(1.22)	1.0	(0.28)
Zambia	4	87.3	(1.10)	11.9	(0.96)	0.8*	(0.41)*
Kenya	6	21.6	(1.22)	52.9	(1.16)	25.5	(1.31)
Lesotho	7	37.9	(2.01)	51.3	(1.85)	10.8	(1.56)
Zambia	7	45.3	(1.62)	45.0	(1.40)	9.7	(1.14)

* There are too few observations to provide reliable estimates.

TABLE D 10: Proportion of girls and boys achieving the MPL for reading with standard errors

COUNTRY	GRADE	GIRLS						BOYS					
		Below MPLa		Between MPL a & b		Meeting or exceeding MPLb		Below MPLa		Between MPL a & b		Meeting or exceeding MPLb	
		Percent	SE	Percent	SE	Percent	SE	Percent	SE	Percent	SE	Percent	SE
The Gambia	3	76.9	(1.66)	21.9	(1.48)	1.2*	(0.42)*	80.4	(1.50)	18.8	(1.42)	0.9*	(0.33)*
Zambia	4	87.0	(1.29)	12.2	(1.22)	0.7*	(0.38)*	87.7	(1.32)	11.5	(1.19)	0.8*	(0.50)*
Kenya	6	18.2	(1.29)	54.6	(1.52)	27.2	(1.59)	24.9	(1.57)	51.2	(1.42)	23.9	(1.54)
Lesotho	7	33.5	(2.21)	54.4	(2.11)	12.0	(1.75)	43.3	(2.29)	47.4	(2.05)	9.4	(1.57)
Zambia	7	44.3	(1.89)	44.7	(1.65)	11.0	(1.40)	46.4	(1.84)	45.3	(1.79)	8.3	(1.14)

* There are too few observations to provide reliable estimates.

APPENDIX E:

MILO assessment results

TABLE E 1: Proportions of students meeting or exceeding MPLb for mathematics, by country and gender

COUNTRY	ALL (%)	BOYS (%)	GIRLS (%)
Burkina Faso	23.7	25.8	22.1
Burundi	13.5	16.5	11.1
Côte d'Ivoire	8.9	8.8	9.1
Kenya	74.1	73.5	74.6
Senegal	34.0	34.1	33.9
Zambia	2.1	2.0	2.1

TABLE E 2: Proportions of students meeting or exceeding MPLb for reading, by country and gender

COUNTRY	ALL (%)	BOYS (%)	GIRLS (%)
Burkina Faso	9.0	9.3	8.8
Burundi	0.1	0.1	0.1
Côte d'Ivoire	10.8	9.9	11.7
Kenya	46.7	44.9	48.4
Senegal	13.3	11.6	14.6
Zambia	2.3	2.4	2.2

APPENDIX F:

Supplementary contextual data tables

All percentages were calculated using valid responses only and have been rounded to the nearest whole number. Where a value is N/A, this means that there were no valid responses in that

category. Where a value is 0 (zero), this means that fewer than 0.5% of respondents answered in that category. Text between [square brackets] indicates terms that could be adapted to suit local contexts.

STUDENT QUESTIONNAIRE

TABLE F 3: Household items

	THE GAMBIA	KENYA	LESOTHO	ZAMBIA G4	ZAMBIA G7
	% students	% students	% students	% students	% students
Piped water	67	50	53	29	33
Electricity	69	62	56	41	46
Computer/tablet	50	27	22	19	21
Study desk/table for you to use	56	69	34	32	34
Own bedroom	42	57	34	36	47
Family car	54	32	38	23	24
Television	74	70	56	43	51
Refrigerator	62	24	41	29	34
Cooker (hotplate and oven, gas stove)	51	57	73	26	31
Flush toilet	53	30	14	21	26
Motorcycle, moped or motor-scooter	48	39	12	16	16
Your own books for reading (not including school textbooks)	67	75	59	40	44

TABLE F 4: Household members

		THE GAMBIA	KENYA	LESOTHO	ZAMBIA G4	ZAMBIA G7
		% students	% students	% students	% students	% students
Parent(s) (including step-parents or foster parents)	None	14	8	15	8	9
	One	17	16	21	19	19
	Two	30	57	37	60	59
	Three or more	39	19	26	14	13
Other adults (e.g., grandparents, aunt, uncle, cousin, friend)	None	21	27	32	36	37
	One	21	18	24	24	24
	Two	23	18	19	20	21
	Three or more	34	37	25	20	18
Older brothers and sisters (or the same age as you)	None	14	21	34	18	22
	One	20	20	28	23	24
	Two	27	26	21	27	28
	Three or more	39	33	17	32	27
Younger brothers and sisters	None	15	19	29	18	15
	One	21	27	35	27	26
	Two	30	30	23	32	33
	Three or more	34	23	13	23	26
Young cousins or friends	None	26	35	53	40	45
	One	20	17	18	17	19
	Two	20	16	12	21	18
	Three or more	33	32	17	22	19

TABLE F 5: Access to food and drink

		THE GAMBIA	KENYA	LESOTHO	ZAMBIA G4	ZAMBIA G7
		% students	% students	% students	% students	% students
Fruit (e.g., [apples, oranges, pears])	Never	14	8	23	20	15
	Once a week or less	23	27	32	33	33
	A few times a week	31	34	31	27	37
	Every day	33	30	14	20	15
Vegetables (e.g., [potatoes, carrots, beans])	Never	13	4	6	8	6
	Once a week or less	27	17	18	20	18
	A few times a week	31	30	28	26	29
	Every day	29	49	48	45	48
Meat, fish, eggs, or tofu	Never	10	8	13	9	8
	Once a week or less	23	31	36	32	29
	A few times a week	35	42	37	39	44
	Every day	33	19	14	19	19
Rice, grains, legumes, or cereals	Never	10	6	16	14	11
	Once a week or less	11	24	33	28	29
	A few times a week	15	37	34	32	36
	Every day	64	34	17	27	24
Milk	Never	11	12	14	23	22
	Once a week or less	24	16	29	30	27
	A few times a week	37	22	33	27	32
	Every day	28	50	24	20	20
Water	Never	7	2	3	5	5
	Once a week or less	7	2	4	10	9
	A few times a week	9	3	4	7	6
	Every day	77	92	89	78	81

TABLE F 6: Access to meals on a normal school day

		THE GAMBIA	KENYA	LESOTHO	ZAMBIA G4	ZAMBIA G7
		% students	% students	% students	% students	% students
Breakfast	At home	48	79	75	73	61
	At school	45	10	18	14	21
	In another place	4	1	3	1	2
	I don't eat this meal	4	9	5	12	16
Lunch	At home	69	43	11	85	84
	At school	23	51	85	12	13
	In another place	5	3	2	2	1
	I don't eat this meal	4	3	2	2	2
Dinner	At home	78	85	81	89	87
	At school	8	6	4	7	7
	In another place	8	5	8	2	2
	I don't eat this meal	6	5	6	2	4

TABLE F 7: Handwashing hygiene

		THE GAMBIA	KENYA	LESOTHO	ZAMBIA G4	ZAMBIA G7
		% students	% students	% students	% students	% students
Wash my hands with water after visiting the toilet	Never	13	9	12	6	7
	Sometimes	28	36	38	24	24
	Often	59	56	50	70	69
Wash my hands with water and soap after visiting the toilet	Never	10	11	13	12	11
	Sometimes	32	43	45	37	40
	Often	58	46	42	50	50
Wash my hands with water before I eat food	Never	10	8	9	7	7
	Sometimes	22	24	39	20	17
	Often	67	69	52	73	75
Wash my hands with water and soap before I eat food	Never	14	12	11	20	23
	Sometimes	35	40	45	38	41
	Often	51	48	44	42	36

TABLE F 8: Absence due to illness

	THE GAMBIA	KENYA	LESOTHO	ZAMBIA G4	ZAMBIA G7
	% students	% students	% students	% students	% students
I have not been sick in the last month	60	54	59	56	
2 to 3 times in the last month	29	37	30	37	
More than 5 times in the last month	12	10	11	7	

TABLE F 9: Support from family

		THE GAMBIA	KENYA	LESOTHO	ZAMBIA G4	ZAMBIA G7
		% students	% students	% students	% students	% students
Help you with your reading	Never	22	14	18	23	24
	Sometime	53	59	58	53	58
	Often	25	27	24	24	17
Help you with your writing	Never	36	33	24	32	39
	Sometimes	44	44	51	47	43
	Often	21	23	25	21	17
Help you with mathematics	Never	28	15	21	24	26
	Sometimes	48	51	51	48	51
	Often	25	34	29	29	22
Ask you what you are learning	Never	24	14	21	19	17
	Sometimes	49	44	47	46	47
	Often	27	42	32	35	35
Check whether you are completing your schoolwork	Never	28	17	22	22	23
	Sometimes	47	38	45	46	46
	Often	26	45	33	32	31
Explain new topics to you	Never	34	26	37	35	40
	Sometimes	41	46	41	38	40
	Often	25	29	23	27	20

TABLE F 10: Highest level of formal education completed by parent or guardian

	THE GAMBIA		KENYA		LESOTHO		ZAMBIA G4		ZAMBIA G7	
	Mother	Father	Mother	Father	Mother	Father	Mother	Father	Mother	Father
	% students		% students		% students		% students		% students	
She did not complete [ISCED level 1]	33	23	11	8	10	19	14	9	13	9
[ISCED level 1]	8	8	16	14	39	34	21	17	24	18
[ISCED level 2]	13	12	8	7	13	11	26	23	27	23
[ISCED level 3]	17	21	28	26	19	18	23	29	20	22
[ISCED level 4 or 5]	10	14	15	18	12	11	9	13	9	16
[ISCED level 6] or higher	20	22	22	27	6	7	6	9	8	11

'Mother' includes female guardian. 'Father' includes male guardian.

SCHOOL QUESTIONNAIRE

All school-level results came from the school questionnaire which was completed by the principal or their delegate. However, as the student is the unit of analysis in this study, the results are weighted by the num-

ber of students in the population attending the school. Therefore, the results in this section are reported as the percentage of students in a school whose principal completed the school questionnaire.

TABLE F 11: Age of principal

	THE GAMBIA	KENYA	LESOTHO	ZAMBIA G4	ZAMBIA G7
	% students	% students	% students	% students	% students
24 years or younger	0	0	N/A	0	1
25-34 years	3	11	3	4	3
35-44 years	21	19	22	19	18
45-54 years	39	43	39	54	56
55-64 years	33	27	33	22	22
65 years or older	2	0	2	0	0

TABLE F 12: Years work experience of principal

		THE GAMBIA	KENYA	LESOTHO	ZAMBIA G4	ZAMBIA G7
		% students	% students	% students	% students	% students
Year(s) working as a principal at this school	2 years or less	48	40	16	45	46
	3-5 years	20	36	20	32	32
	6-10 years	21	17	25	14	14
	11-20 years	6	6	29	5	4
	21-30 years	3	0	6	2	3
	31 years or more	2	N/A	4	1	1
Year(s) working as a principal in total	2 years or less	30	12	17	22	22
	3-5 years	12	26	18	17	17
	6-10 years	29	24	24	21	21
	11-20 years	20	27	25	30	30
	21-30 years	6	8	10	8	9
	31 years or more	3	2	5	1	1

TABLE F 13: Satisfaction level of school leaders

		THE GAMBIA	KENYA	LESOTHO	ZAMBIA G4	ZAMBIA G7
		% students	% students	% students	% students	% students
I am content with my profession	Never	3	0	0	1	1
	Rarely	8	1	4	2	3
	Sometimes	32	8	20	6	7
	Often	57	90	75	91	90
I am content with my salary	Never	32	20	51	15	15
	Rarely	15	18	17	12	12
	Sometimes	33	42	15	44	43
	Often	20	19	17	29	29
I find my work full of meaning and purpose	Never	1	N/A	1	N/A	N/A
	Rarely	6	0	6	1	1
	Sometimes	21	13	20	5	5
	Often	73	87	74	94	94
I am enthusiastic about my job	Never	3	N/A	2	N/A	N/A
	Rarely	9	2	5	2	1
	Sometimes	22	11	23	7	7
	Often	66	87	70	91	92
My work inspires me	Never	1	N/A	3	N/A	N/A
	Rarely	7	1	4	N/A	N/A
	Sometimes	24	11	30	14	15
	Often	67	88	63	86	85
I am proud of the work that I do	Never	N/A	N/A	2	N/A	N/A
	Rarely	10	0	2	1	1
	Sometimes	19	10	19	4	4
	Often	70	90	76	95	95
I am going to continue in this role for as long as I can	Never	5	0	5	1	1
	Rarely	13	1	5	3	3
	Sometimes	21	12	14	10	11
	Often	62	86	76	85	84

TABLE F 14: Provision of meals to students, part 1/2

		THE GAMBIA	KENYA	LESOTHO	ZAMBIA G4	ZAMBIA G7
		% students	% students	% students	% students	% students
Breakfast funded by a non-government or not-for-profit organisation	Yes, for all students	7	3	12	10	9
	Yes, for some students	1	2	0	3	3
	No	92	95	88	87	88
Breakfast funded by local government	Yes, for all students	3	N/A	17	2	1
	Yes, for some students	0	4	1	N/A	N/A
	No	96	96	82	98	99
Breakfast funded by local charity, community, or religious groups	Yes, for all students	2	1	1	1	1
	Yes, for some students	2	1	N/A	1	2
	No	96	98	99	99	98
Breakfast partially or fully paid for by parents	Yes, for all students	13	12	6	1	1
	Yes, for some students	5	13	0	4	5
	No	82	75	94	95	95
Lunch funded by a non-government or not-for-profit organisation	Yes, for all students	35	5	25	3	3
	Yes, for some students	5	1	0	1	1
	No	60	94	75	97	96
Lunch funded by local government	Yes, for all students	6	4	47	2	1
	Yes, for some students	1	2	1	0	0
	No	93	93	52	98	98
Lunch funded by local charity, community, or religious groups	Yes, for all students	3	1	0	1	1
	Yes, for some students	2	1	1	2	4
	No	94	99	99	97	95
Lunch partially or fully paid for by parents	Yes, for all students	13	13	9	3	4
	Yes, for some students	8	37	1	3	3
	No	78	50	90	94	93

TABLE F 15: Provision of meals to students, part 2/2

		THE GAMBIA	KENYA	LESOTHO	ZAMBIA G4	ZAMBIA G7
		% students	% students	% students	% students	% students
Breakfast or lunch that includes vegetables	Yes, for all students	33	8	27	1	1
	Yes, for some students	9	11	3	3	5
	No	58	81	70	96	94
Breakfast or lunch that includes meat, fish, eggs, or tofu	Yes, for all students	24	3	11	1	1
	Yes, for some students	10	3	2	2	3
	No	65	94	87	97	96
Breakfast or lunch that includes rice, grains, legumes, or cereals	Yes, for all students	37	19	27	3	3
	Yes, for some students	10	19	4	4	5
	No	53	62	69	93	92
Milk	Yes, for all students	6	2	2	1	1
	Yes, for some students	5	4	2	1	2
	No	90	94	96	98	98
Drinking water	Yes, for all students	81	73	80	52	50
	Yes, for some students	5	6	1	3	4
	No	14	20	19	46	46

TABLE F 16: General school facilities

	THE GAMBIA	KENYA	LESOTHO	ZAMBIA G4	ZAMBIA G7
	% students	% students	% students	% students	% students
Electricity	73	88	51	60	63
Piped water	89	50	69	51	53
Safe drinking water	95	73	77	83	85
Hand washing station with soap	44	56	45	77	77
Hand washing station without soap	33	43	45	33	35
Facilities for students with disabilities	27	21	3	26	28
Landline telephone	8	4	7	8	9
Photocopier	36	37	23	53	56
Computer	44	67	26	77	79
Internet access	18	39	10	54	53
School library	67	27	18	22	22

TABLE F 17: School toilet facilities

	THE GAMBIA	KENYA	LESOTHO	ZAMBIA G4	ZAMBIA G7
	% students	% students	% students	% students	% students
Communal toilets (toilets shared by all students)	42	25	15	34	34
Toilets only for boys	93	92	88	92	93
Toilets only for girls	92	91	89	92	93
Toilets only for staff	84	92	84	83	85
Flush toilets	37	15	12	33	39
Pit toilets (including non-flushable)	67	79	77	71	68
Toilets for children with disabilities	30	15	15	10	12

TABLE F 18: Textbook availability

		THE GAMBIA	KENYA	LESOTHO	ZAMBIA G4		ZAMBIA G7
		Grade 3	Grade 6	Grade 7	Grade 4	Grade 7	Grade 4
		% students	% students	% students	% students	% students	% students
Mathematics	Only the teacher has access to a textbook	33	3	3	27	29	26
	There are no textbooks available for the teacher or students	5	N/A	2	6	4	5
	Each student has their own textbook	17	53	68	8	8	7
	One textbook shared between two students	20	31	21	17	15	20
	One textbook shared between three or more students	26	13	6	42	45	43
[Assessment language]	Only the teacher has access to a textbook	31	3	3	16	17	16
	There are no textbooks available for the teacher or students	8	1	2	2	4	2
	Each student has their own textbook	15	53	70	11	8	10
	One textbook shared between two students	21	30	20	24	19	26
	One textbook shared between three or more students	24	14	6	47	52	47

TABLE F 19: Student to staff ratio

	THE GAMBIA	KENYA	LESOTHO	ZAMBIA G4	ZAMBIA G7
	% students	% students	% students	% students	% students
Less than 10 students per staff	11	9	3	8	9
Between 10 and 20 students per staff	14	10	14	3	3
Between 20 and 30 students per staff	25	20	25	8	7
Between 30 and 40 students per staff	23	18	28	18	17
Between 40 and 50 students per staff	11	19	16	19	18
Between 50 and 60 students per staff	5	12	9	11	11
Between 60 and 70 students per staff	2	6	0	8	8
Between 70 and 80 students per staff	2	3	1	6	7
Between 80 and 90 students per staff	4	1	1	4	5
Between 90 and 100 students per staff	1	1	0	4	4
Between 100 and 150 students per staff	0	0	0	10	11
Between 150 and 200 student per staff	1	0	1	1	1
More than 200 students per staff	1	1	2	1	1

TABLE F 20: Teacher qualifications

		THE GAMBIA	KENYA	LESOTHO	ZAMBIA G4	ZAMBIA G7
		% students	% students	% students	% students	% students
An [ISCED level 6] or higher	25% or less	75	66	26	62	58
	26-50%	5	26	17	22	25
	51-75%	6	7	19	11	12
	More than 75%	13	2	38	5	5
A formal pre-teaching qualification	25% or less	12	13	39	38	38
	26-50%	4	8	14	4	4
	51-75%	12	15	13	12	12
	More than 75%	72	64	35	45	46

TABLE F 21: Teacher professional development in the past year

		THE GAMBIA	KENYA	LESOTHO	ZAMBIA G4		ZAMBIA G7	
		Grade 3	Grade 6	Grade7	Grade 4	Grade 7	Grade 4	Grade 7
		% students	% students	% students	% students	% students	% students	% students
Reading	Between 0-10%	43	23	60	18	18	17	17
	Between 11-30%	6	12	7	10	10	11	10
	Between 31-50%	10	19	6	14	14	14	14
	Between 51-70%	9	18	11	17	15	16	14
	Between 71-90%	11	15	9	18	22	17	22
	More than 90%	22	13	7	23	21	24	23
Writing	Between 0-10%	44	23	59	18	18	17	18
	Between 11-30%	6	15	4	10	9	11	9
	Between 31-50%	9	14	8	13	14	13	14
	Between 51-70%	7	20	9	17	18	15	17
	Between 71-90%	12	14	12	18	20	19	21
	More than 90%	22	14	7	23	20	25	22
Mathematics	Between 0-10%	43	21	60	19	20	18	21
	Between 11-30%	6	14	8	9	8	9	7
	Between 31-50%	10	13	7	12	14	13	13
	Between 51-70%	4	24	10	23	18	22	19
	Between 71-90%	15	13	7	15	21	14	20
	More than 90%	21	14	8	22	19	24	20

General teaching pedagogy	Between 0-10%	38	17	63	15	15	13	14
	Between 11-30%	2	8	3	10	9	10	9
	Between 31-50%	8	11	6	9	8	9	8
	Between 51-70%	9	21	8	17	14	17	13
	Between 71-90%	11	20	12	20	30	19	28
	More than 90%	31	24	8	29	25	33	28
Health	Between 0-10%	57	30	62	30	26	27	25
	Between 11-30%	7	12	8	12	13	11	11
	Between 31-50%	6	15	7	17	14	18	15
	Between 51-70%	7	19	7	17	19	16	19
	Between 71-90%	11	9	8	9	13	9	13
	More than 90%	13	15	9	17	15	19	17

TABLE F 22: Student absence in the past month

		THE GAMBIA	KENYA	LESOTHO	ZAMBIA G4		ZAMBIA G7	
		Grade 3	Grade 6	Grade 7	Grade 4	Grade 7	Grade 4	Grade 7
		% students	% students	% students	% students	% students	% students	% students
Student in [target grade] absent due to illness	Between 0-10%	84	69	84	69	79	67	77
	Between 11-30%	14	22	12	23	14	24	16
	Between 31-50%	2	6	2	4	3	4	3
	Between 51-70%	N/A	2	1	2	2	3	2
	Between 71-90%	N/A	0	1	2	2	2	2
	More than 90%	0	0	N/A	1	1	1	1
Student in [target grade] absent due to truancy	Between 0-10%	87	80	85	68	71	67	69
	Between 11-30%	10	11	11	19	17	20	17
	Between 31-50%	1	5	3	7	8	7	9
	Between 51-70%	1	1	0	5	2	5	2
	Between 71-90%	1	2	0	0	1	1	2
	More than 90%	N/A	N/A	1	1	1	1	1

APPENDIX G:

ISCED definitions

Level of formal education was based on the International Standard Classification of Education Indicators (ISCED) (UNESCO, 2012).

ISCED level	THE GAMBIA	KENYA	LESOTHO	ZAMBIA
2	Upper basic	Form 2 of Secondary School	Junior Certificate	Junior Secondary School
3	Senior secondary, national training authority certificate programmes	Form 3 and 4 of Secondary School	Form F / COSC / LGCSE	Senior Secondary School
4 or 5	Ordinary diploma programmes, higher diploma programmes, diploma in management	Middle college level education (e.g. technical courses, diploma courses, certificate course qualifications)	Post Secondary Education Certificate / Diploma	Trade Certificate / Certificate / Advanced Certificate / Diploma
6	Bachelor's degree	Bachelor's degree	Bachelor's Degree / Honours Degree / Post graduate Diploma	Bachelor's Degree
7 or 8	Masters degree, medical degree, PhD	Masters or Post graduate degree	Masters / Doctoral or equivalent	Masters or Doctorate

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