Republic of Rwanda
Ministry of Education

NESA
NATIONAL EXAMINATION AND SCHOOL INSPECTION AUTHORITY

Learning Achievement in Rwandan Schools (LARS) 2025



13 May 2026

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Abbreviations

ACER	**Australian Council for Educational Research**
AITS	Assistive and Inclusive Technology Solutions Ltd
AMPL	Assessments for Minimum Proficiency Levels
CAMIS	Continuous Assessment Management Information System
CBC	Competency-Based Curriculum
CPD	Continuous Professional Development
CBL	Competency-Based Learning
CTT	Classical Test Theory
CWPM	Correct Words Per Minute
DIF	Differential Item Functioning
EDC	Education Development Consult
ESSP	Education Sector Strategic Plan
FGD	Focus Group Discussion
GOR	Government of Rwanda
GPF	Global Proficiency Framework
ICT	Information and Communication Technology
IEP	Individualised Education Plan
IRT	Item Response Theory
LARS	Learning Achievement in Rwandan Schools
MCQ	Multiple Choice Question
MINEDU	Ministry of Education
MPL	Minimum Proficiency Levels
NA	Not Applicable
NESA	National Examination and School Inspection Authority
NGO	Non-Governmental Organisation
NS	Not Significant
OECD	Organisation for Economic Co-operation and Development
ORF	Oral Reading Fluency
P3	Primary 3
P6	Primary 6
PCA	Principal Component Analysis

PIRLS	**Progress in International Reading Literacy Study**
PISA	Programme for International Student Assessment
PPS	Probability Proportional to Size
PV	Plausible Value
RC	Reading Comprehension
REB	Rwanda Education Board
S3	Secondary 3
SD	Standard Deviation
SDG	Sustainable Development Goals
SE	Standard Error
SEN	Special Education Needs
SRS	Simple Random Sampling
TIMSS	Trends in International Mathematics and Science Study
TLM	Teaching and Learning Material
TVET	Technical and Vocational Education and Training
UIS	UNESCO Institute for Statistics
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	United Nations Children's Fund

Foreword

I am pleased to present the Report on Learning Achievement in Rwandan Schools (LARS), conducted by the National Examinations and School Inspection Authority (NESA). This report provides clear, evidence-based insights into student learning outcomes across Rwanda and highlights both progress made and areas that require focused improvement.

The findings go beyond reporting scores. They examine performance across subjects, grade levels, school locations, and learner backgrounds. This analysis helps us understand disparities in achievement and strengthens our commitment to equitable, inclusive, and high-quality education for every learner in Rwanda.

The successful implementation of LARS reflects strong technical rigor, transparency, and collaboration. I extend my sincere appreciation to the Ministry of Education for its strategic guidance and policy leadership throughout the process. I also thank the NESA technical teams whose dedication ensured the credibility, reliability, and integrity of the assessment.
My gratitude goes to our education stakeholders, including development partners, district education officials, school leaders, teachers, and field coordinators, who supported data collection and quality assurance. I especially recognize the learners who participated in the assessment and the teachers who facilitated the process in schools across the country. Your cooperation made this national exercise possible.

I extend sincere appreciation to the World Bank for its financial support and to the Foreign, Commonwealth & Development Office (FCDO), which engaged ACER-UK to provide technical assistance to NESA in aligning the LARS instruments with UNESCO-UIS criteria. Through this collaboration, we strengthened the methodological rigor and reporting standards of LARS to meet international comparability requirements while remaining firmly grounded in Rwanda's curriculum context. Subject to validation by UNESCO-UIS, the LARS 2025 results will be eligible for reporting on SDG indicator 4.1.1 on minimum proficiency in reading and mathematics.

I also acknowledge ACER-India for leading the data analysis and ensuring technical rigor in scaling, validation, and reporting. I thank their partner, Education Development Consult (EDC), for professionally coordinating data collection in schools across the country.

Appreciation goes to Ms. Annet MBABAZI MUGOBOKA, Assessment Specialist at NESA-SPIU, for leading the process from tool development through validation, coordination, and finalization of this report. Her technical leadership and commitment were instrumental in delivering LARS 2025 to the highest standards.

LARS 2025 provides actionable evidence. We will use these findings to strengthen curriculum implementation, teacher

professional development, targeted interventions, and school inspection practices. Our goal remains clear, improve learning outcomes for every Rwandan learner and ensure that our education system delivers measurable, equitable, and sustainable progress. Improving learning outcomes is a shared responsibility.

As we move forward, we remain committed to using reliable data to drive reforms, enhance accountability, and ensure that every Rwandan child acquires the knowledge and competencies needed to thrive in the 21st century.

Sincerely

Dr. Bernard BAHATI
Director General

MESSAGE

The Learning Achievement in Rwandan Schools (LARS) assessment is a key national initiative designed to monitor and report on students' learning outcomes in Rwanda. The assessment provides reliable and comprehensive evidence on how well learners are progressing in foundational and core competencies across the education system.

This report presents the findings from the LARS assessment and highlights important trends in student learning across participating schools. The results provide a clear picture of students' strengths and areas where additional support is needed. By generating high-quality national data on learning achievement, LARS contributes to a stronger evidence base for improving teaching, learning, and education policy in Rwanda.

The assessment was implemented through the collaboration of the Ministry of Education and the National Examination and School Inspection Authority (NESA), with valuable support from development and technical partners. The successful completion of this assessment reflects the dedication of ACER-India team, EDC, school leaders, teachers, enumerators, data managers, and learners who participated in the process.

The findings in this report will serve as an important resource for policymakers, education leaders, researchers, and practitioners. By carefully analysing and using the evidence generated through LARS, stakeholders can strengthen strategies that enhance learning outcomes, support effective teaching practices, and ensure that all learners in Rwanda have the opportunity to acquire the knowledge and skills necessary for their future and for the country's sustainable development.

Director General
National Examination and School Inspection Authority (NESA)

Executive summary

The Learning Achievement in Rwandan Schools (LARS) 2025 was conducted by National Examination and School Inspection Authority (NESA) in May 2025. The aim was to provide nationally representative evidence on learners' achievement in English, mathematics, and science at Primary 3 (P3), Primary 6 (P6), and Secondary 3 (S3) levels. The assessment offers a clear picture of learning outcomes across Rwanda and identifies patterns and disparities that have implications for policy, curriculum, capacity strengthening and broader education system improvements.

It also aimed to generate nationally representative data to meet international reporting requirements for Sustainable Development Goals (SDG) indicators 4.1.1a and 4.1.1b.

Participants

A total of 22,950 learners in Primary 3 (P3), Primary 6 (P6), and Secondary 3 (S3) across 592 schools, including 3 schools for Special Education Needs (SEN) learners, from 30 districts and five provinces in Rwanda participated in LARS 2025.

Table ES1: Participants in LARS 2025

Grade	Number of schools sampled	Number of schools participated	Number of learners sampled	Number of learners participated
Primary 3 (P3)	540	536	8,640	7,819
Primary 6 (P6)	540	531	8,640	8,381
Secondary 3 (S3)	432	426	6,908	6,750

Participation rates were high across all grades, above 90%, meeting the technical standards of LARS 2025 and international benchmarks, and ensuring reliable population-level estimates. The sample was designed to provide proportional representation across provinces, districts, and school types, while maintaining gender balance.

Assessment design and reporting

The literacy and numeracy assessment tools used in LARS 2025 were aligned with global minimum proficiency frameworks and Rwandan national curriculum, while the science tool was based on the S3 Rwandan curriculum only. The learning assessment tools were adapted to Braille for visually impaired learners. All assessment tools were reliable with a reliability coefficient (Cronbach's alpha) above 0.8. In addition to the learning assessments, LARS 2025 collected contextual information through learner questionnaire, head teacher questionnaire, and parent questionnaire, complemented by teacher focus group discussions and stakeholder interviews.

The table below summarises the various assessment tools employed in LARS 2025.

Table ES2: Assessment tools used in LARS 2025

Cronbach's alpha is a measure of internal consistency or reliability. It indicates how closely related a set of items (questions) are as a group in an assessment. It ranges from 0 to 1, with a higher value (often >0.7) suggesting the items consistently measure the same latent construct.

Grade levels	Kinyarwanda	English	Mathematics	Science	Contextual questionnaires
P3 - Oral Reading Fluency (ORF)	√	√			
P3		√	√		√
P6		√	√		√
S3		√	√	√	√

The learning assessment or cognitive tools consisted of 30 multiple-choice questions, and all assessments except Oral Reading Fluency (ORF) were administered as paper-and-pencil tests.

Results were analysed using Classical Test Theory (CTT) as well as Rasch Model of Item Response Theory (IRT) and reported through grade- and subject-specific scales, with performance classified into four proficiency levels:

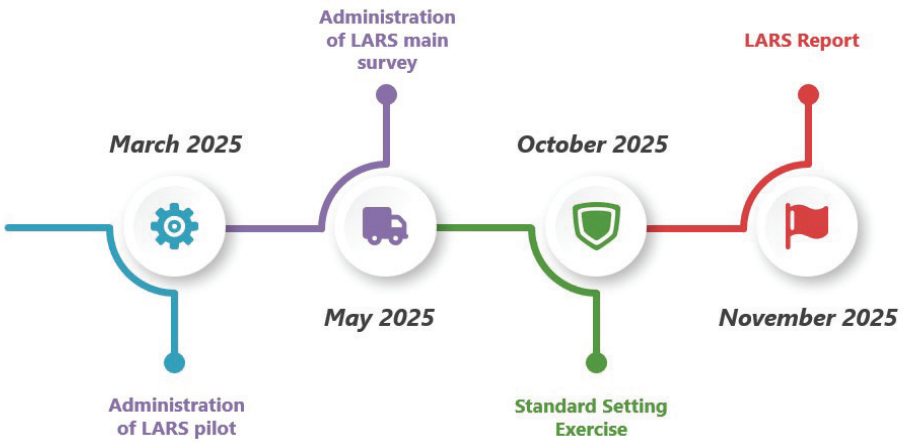
- **Exceeds Expectations (EE):** the learner's performance exceeds expectations at the time of testing.
- **Meets Expectations (ME):** the learner's performance meets challenging but reasonable expectations at the time of testing.
- **Partially Meets Expectations (PME):** the learner's performance indicates that they are working towards expectations at the time of testing.
- **Below Partially Meets Expectations (BPME):** the learner's performance indicates that they are not achieving the learning outcomes that are expected at the time of testing. They are likely to need additional support to progress satisfactorily.

Benchmarks were set through a national standard setting workshop using the Bookmark method, reflecting challenging but reasonable curricular expectations.

Assessment implementation

Preparation for LARS 2025 commenced well before the main survey. The figure below illustrates the key timelines for the main survey.

Figure ES1: Important milestones in LARS 2025



Assessments were conducted across all 5 provinces and 30 districts of Rwanda during 19 – 22 May 2023. Eight supervisors, 30 master trainers, and approximately 600 supported test administration of LARS 2025.

The analysis also included subgroup comparisons, significance testing, and weighting procedures to draw valid inferences about the population estimates. Furthermore, regression analysis was employed to identify contextual variables associated with learning achievement.

Key findings

Learner achievement in LARS 2025 is reported based on mean scale scores and proficiency levels.

Key finding 1: More learners meet grade level expectations as the grade levels increase

Overall achievement:

Across mathematics and English, learner performance improved progressively with each grade level. There is a clear trend that a larger proportion of learners in higher grades were able to demonstrate grade level expectations. Although it seems encouraging, it is worth exploring the extent to which the global proficiency levels align with the Rwandan curriculum.

Ensuring strong alignment is critical for confirming that the progress in learning is happening at an appropriate pace and that improvements reflect genuine advancement in curriculum-based skills.

Table ES3: Percentage of learners who met grade-level expectations in LARS 2025

Subject	Assessed Skill	P3	P6	S3
English	Foundational Skills	46.6%	72.5%	63.8%
	Reads words in a text	63%	NA	NA
	Reading comprehension	24%	NA	NA
Kinyarwanda	Reads words in isolation	49%	NA	NA
	Reads words in a text	71%	NA	NA
	Reading comprehension	44%	NA	NA
Mathematics	Overall	63%	68.7%	57.5%
Science	Overall	NA	NA	74.8%

Foundational literacy:

Oral Reading Fluency (ORF) results for P3 highlight a sharp contrast between decoding and comprehension skills.

- 44% P3 learners were able to answer short passage-based comprehension questions in Kinyarwanda. The comprehension performance in English was very low, where one in four learners (24%) could only correctly answer reading comprehension questions.

- In Kinyarwanda, around 49% of learners met benchmarks for reading words in isolation, 71% met benchmarks when reading connected text, but only 44% met comprehension benchmarks. Students read a larger number of words in connected text than in isolation in Kinyarwanda as connected texts contain words that are likely to be shorter in length such as conjunctions, pronouns, etc. English ORF did not have 'reads words in isolation' task.

The percentage of learners who met expectations for ORF benchmarks in each task of English and Kinyarwanda has been given below. The findings indicate that many learners can read text aloud but struggle to extract meaning underscoring the need to strengthen early reading comprehension rather than fluency alone.

Key finding 2: SEN learners show better average performance than other learners

SEN learners showed higher average scale scores than national means in some grades and subjects, particularly in P3 and S3 English and in P3 and P6 mathematics. Table ES5: National mean scale score by subject and grade for SEN learners

Grade	English		Mathematics		Science	
	SEN	National	SEN	National	SEN	National
P3	534.3	501.8	540.6	494.4	NA	NA
P6	513.0	536.0	533.1	499.5	NA	NA
S3	563.6	524.5	567.2	575.2	466.4	532.4

Given very small sample sizes and high variability in performance data, direct comparison with the overall population is not recommended. Such comparisons may lead to unreliable or misleading conclusions.

The contextual data provide valuable insights into the learning environment of SEN learners. Most of them reported relatively stronger learning resources home and also reported strong teacher support and a positive school environment. However, teachers highlighted critical barriers to learning, including the lack of adapted teaching learning materials and curriculum.

Key finding 3: Pattern in achievement vary by subgroups and show a mixed trend

Gender: For English and mathematics, female learners performed on par with male learners at P3 but performed lower at P6 level. By S3, male learners performed significantly better across all 3 subjects, indicating widening gender gaps with progression to higher grades.

Table ES6: Mean scale score by gender

Grade level	English mean scale score				Mathematics mean scale score				Science mean scale score			
	N	Male	N	Female	N	Male	N	Female	N	Male	N	Female
P3	3543	499	3634	505	3568	495	3668	494		NA		NA
P6	3546	538	3657	534	3339	503	3667	496		NA		NA
S3	2883	530	2968	520	2862	579	2936	572	2879	538	2960	527

When the percentage of learners who meet expectations was considered, a similar pattern emerged, with negligible performance gaps between genders in P3 and male learners performing better than female learners as the grade level increases.

The performance gaps were most significant for female learners in higher grades in rural areas across subjects suggesting that the achievement gap is a larger issue in rural areas.

Key finding 4: Difference in performance between urban and rural learners is evident in English

Different provinces demonstrated strengths in different subjects

Learners in Kigali City and West Province performed better in English, while in mathematics West Province and East Province were better performers. In S3 science, a higher proportion of learners from East Province were able to meet expectations. Learners in North Province showed significant achievement gaps in science and English.

Performance across districts was similar to the national average

Most districts showed similar performance to the national performance suggesting that the quality of education is equitably distributed across the various districts of Rwanda. The only exception was P6 mathematics.

Districts such as Rutsiro, Nyagatare, and Nyamagabe showed strong performance across levels and different subjects, indicating effective educational practices or resource availability. Districts such as Kirehe, Ruhango, Nyarugenge, and Rulindo may require targeted interventions to improve learner outcomes in specific subjects. Musanze showed high variability in performance, suggesting inconsistent achievement levels among learners.

Urban learners performed better than rural learners in English

Urban learners consistently performed better than rural learners in English across all 3 grades. However, in mathematics urban learners showed better performance than their rural peers in P3, while rural learners demonstrated stronger performance in P6. By S3, the performance gap narrowed in both science and mathematics.

In English, the percentage of learners who met expectations was higher in urban areas across grades. The difference was more evident when learners who exceed expectations are compared. In S3, for instance, the percentage of learners who exceed expectations in urban areas was 42.7 compared to 23.5 in rural areas.

Learners in government-aided schools showed better performance at the foundational level

Government-aided schools showed stronger performance than the public schools at the foundational level (P3), while no significant differences in performance were observed among the learners in later stages. Due to Probability Proportional to Size (PPS) sampling, there were more learners from government aided schools in the sample.

Key finding 5: Language of instruction plays a key role

Kinyarwanda as the reported language of classroom instruction was associated with lower performance in English. P3 learners taught in Kinyarwanda scored 12.8 scale score points lower in English and 10.8 scale score lower in mathematics, than their peers with English as medium of instruction.

This gap points to the challenges posed by language-of-instruction mismatches in acquiring English literacy skills. It is hard for children to learn in one language and to be tested in other language.

This finding requires careful and nuanced interpretation. In lower grades, instruction in the mother tongue is expected to support stronger learning outcomes. However, the data from LARS 2025 shows that this strategy may not be effective if the official language of instruction differs from the mother tongue creating a misalignment that probably hindered learners' progress. There is a probability that the association between language of instruction and learner performance is also shaped by other confounding factors, such as access to resources at home or education level of parents.

Key finding 6: Learner performance is higher when they have better access to resources at home and facilities in the school

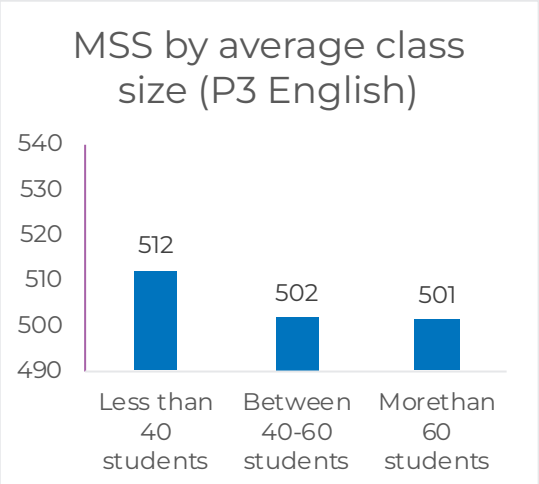
Unsurprisingly, students with access to resources such as mobile phone, books, computers, etc showed better performance as did students whose parents are employed and have higher educational qualifications. In English, students who had access to books scored at least 10 scale scores higher for all the 3 grades, while in mathematics the impact was significant in S3 – 14 scale scores higher than the learners who had limited access to books.

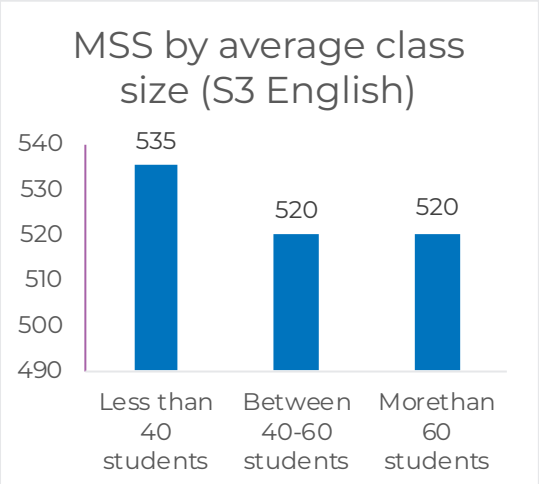
Similarly, schools with better facilities in terms of internet access, libraries, canteens, playground and laboratories showed higher positive influence on student performance. In English, P3 and S3 learners with internet access scored at least 20 scale score points higher than their peers with limited access to these facilities. For P6 learners this achievement gap was 10 scale score point. These achievement gaps represent 6-12 months of schooling in normal education set up. In many cases access to gender specific toilets were found to be associated with higher performance.

Key finding 7: Learners in classroom sizes below 40 students perform better in English

Class size is another important factor determining learning. Learners in classrooms with fewer than 40 students performed up to 15 score points higher than those in classrooms with more than 60 students. This was true for most of the subjects and grades.

Figure ES6: English mean scale score by class size





Key recommendations

The recommendations based on the findings from LARS 2025 have been categorised under two categories: one for improving proficiency level of learners and reducing the achievement gaps, and second for enhancing the implementation quality of the LARS assessments. Key recommendations from both categories are summarised below.

Key recommendation 1: Focussing on pre-primary or early-grade instruction and foundational learning support

The findings show that a larger proportion of learners meet curricular expectations at higher grade levels, suggesting positive cumulative effects of continued schooling.

A sharper focus on ensuring access to formal early childhood education may enable learners to learn effectively in the early primary grades and may improve learning in the early grades.

Strengthening early-grade learning is critical because P3 starts from a low baseline with notable gaps in decoding, comprehension, or exposure to language-rich classroom environments. Raising the baseline is more likely to provide a rich dividend at later learning stages.

Key recommendation 2: Developing specific interventions for female learners as they reach higher grades

The findings indicate that female learners perform similar to or better than male learners in P3. However, a gap develops by P6 which further widens by S3.

It is vital to develop specific interventions that target female learners. As a first step, it may be useful to gather more diagnostic information about the reasons why this disparity exists. Thereafter, targeted interventions will need to be planned based on the information gathered. Regular monitoring to understand the effectiveness of the interventions would be vital to address this issue. Additionally, expanding community outreach and awareness efforts to support girls' learning and addressing domestic constraints affecting homework and school attendance would be effective steps.

Key recommendation 3: Identifying and focussing on structural issues challenging rural learners in English

Urban learners outperformed better rural learners in English across all 3 grades. However, in mathematics urban learners showed better performance than their rural peers in P3 and rural learners did the same in P6. In S3, the difference was marginal in both science and mathematics.

Rural learners appear to face persistent structural challenges that hinder their acquisition of English proficiency. Strengthening English learning in rural areas will require a combination of resource provision and capacity-building of teachers. Targeted teacher training focusing on language pedagogy, pronunciation, vocabulary development, and communicative approaches can equip educators to support learners more effectively. In addition, customised interventions such as mobile language labs, community reading programs, and blended learning modules can help students overcome early deficits and build foundational proficiency.

Key recommendation 4: Providing additional language support

The findings point to difficulties in learning when there is a mismatch in the language used in the classroom and the language of instruction, especially in P3. This was true across both English and mathematics.

Rwandan system has undergone multiple changes in the language of instruction which may have led to difficulties in transition and lack of availability of materials and trained personnel. Further, young learners often face challenges when navigating multiple languages, especially if the transition to English is sudden. Therefore, a careful evaluation of the implementation of the language policy would be essential.

Effective use of English as the language of instruction seems to require more robust support for teachers in developing English language skills, which was also expressed by teachers.

Recommendation 5: Rationalizing classroom size to enhance learner engagement

Findings show that across all 3 subjects, school level conditions such as class size, school shifts, and availability of facilities were closely associated with learner performance. Learners in classrooms with fewer than 40 students performed up to 15 scale score points higher than those in classrooms with more than 60 students, a pattern observed across most subjects and grades.

Large class sizes often limit teachers' ability to provide personalised support, monitor learner progress, and use interactive, competency-based pedagogies. Evidence suggests that learners perform better when classroom size is manageable particularly in early grades. It allows teachers to identify learning gaps at the right time and adjust instruction to meet students' needs. Policy makers may consider revising pupil teacher ratios, deploying additional teachers to overcrowded schools, and exploring double-shift or staggered scheduling where resources are constrained. Smaller, more manageable classes are likely to increase learner engagement, improve attendance, and strengthen mastery of foundational skills.

Recommendation 6: Enhancing effectiveness of CPD in delivery and assessment of competency-based curriculum

Stronger instructional practices were found to contribute meaningfully to learning outcomes. However, to fully realise the potential of a competency-based curriculum, Continuous Professional Development (CPD) must be more targeted, practical, and classroom-focused.

Enhancing CPD requires moving beyond one-off workshops to sustained, practice oriented professional learning that equips teachers with skills in differentiated instruction, formative assessment, activity-based teaching, and integrating real-world learning tasks aligned with competency standards. Structured coaching, peer learning communities, and regular classroom observations with feedback can ensure that training reflects into actual instructional practices. Strengthening CPD in this way will enhance teacher confidence, improve pedagogical consistency across grades, and support deeper learner understanding and skill development.

Recommendation 7: Improving LARS implementation

LARS 2025 used robust assessment methodology over previous cycles. However inherent limitations hindered few steps and analysis. Therefore, the following measures are recommended to ensure that future cycles of LARS are even more technically robust and provide evidence that enrich educational policy and practices:

- Test design should be robust enough to accommodate wide range of outcomes and allow linking across grades, so that a single LARS scale can be developed for each subject.
- Sufficient time should be provided to plan, design, implement and report on LARS.
- Communication between central and local stakeholders may be strengthened to ensure smooth implementation.
- The ORF tools and contextual questionnaires need to be reviewed and updated, if required in every cycle and undergo robust quality assurance processes.

1. Introduction

This report describes the national level results of the Learning Achievement in Rwandan Schools (LARS) 2025, along with disaggregated outcomes by learner and school characteristics such as gender, location, and other relevant categories. Further, it briefly outlines the approach and methodology of the assessment so that this report can serve as a valuable reference for reporting progress toward global commitments such as the United Nations Sustainable Development Goal 4 (SDG 4), as well as for informing future cycles of LARS. To ensure that LARS remains a high-quality assessment guiding education reform aligned to Rwanda's national priorities, recommendations for further strengthening the assessment in the subsequent cycles have also been included in this report.

1.1. Background

Rwanda has achieved significant strides in rebuilding its education system, firmly establishing education as a central pillar of its national development agenda. With 95% of children enrolled in primary school , the country demonstrates a strong commitment to expanding access to education (Rwanda Ministry of Education, 2024). This achievement aligns with Rwanda's dedication to Sustainable Development Goal (SDG) 4, which aims to ensure inclusive, equitable, and quality education for all.

Despite these gains, systemic challenges continue to hinder the full realisation of Rwanda's educational potential. One of the primary challenges is the high pupil-to-teacher ratio, which stands at approximately 60:1 at the primary level (Rwanda Ministry of Education, 2024). Overcrowded classrooms limit teachers' ability to offer personalised instruction and maintain effective classroom management. Additionally, many rural schools also face inadequate infrastructure. A lack of essential teaching materials, along with insufficient access to basic facilities such as desks, textbooks, clean water, and sanitation, further hampers the learning environment (Rwanda Ministry of Education, 2024).

Rwanda has made some progress towards building an inclusive and equitable education system. This is particularly evident in the enrolment figures approximately 70% of learners with disabilities are enrolled in public school. However, for learners with disabilities, inadequate physical accessibility and a lack of trained teachers are issues that need to be addressed. While notable progress has been made toward achieving gender parity in enrolment, significant challenges remain in improving educational outcomes and ensuring smooth progression through the system. Girls are more likely to drop out and remain underrepresented in technical, vocational, and tertiary education (UNICEF, 2023). In terms of learning, boys outperform girls in 26 out of 30 districts.

The Government of Rwanda (GOR) through the Ministry of Education (MINEDUC) and its institutions is implementing a Quality Basic Education for Human Capital Development Project, with an aim to strengthen Rwanda's basic education system through investments in teacher preparation, recruitment, and professional development (to improve teaching practices) as well as in infrastructure and teaching and learning resources (to enhance learners' attendance and learning environment). The project strives to enhance learners' foundational skills and the competencies needed in a modern economy and contribute to efforts of reducing poverty and promoting shared prosperity, thus enabling Rwanda to realise its goal for Vision 2050 of becoming a high-income country (Project Appraisal Document, 2019).

1.2. Learning Achievement in Rwandan Schools

The Ministry of Education has been conducting the Learning Achievement in Rwandan Schools (LARS) on a nationally representative sample from all districts since 2011. In alignment with the commitment of the Government of Rwanda to improving learning outcomes and strengthening the quality and equity of learning nationwide, it was deemed essential to systematically measure learners' proficiency levels. LARS was introduced to assess learning outcomes against the criteria and expectations set by the national curriculum. This initiative has since become an indispensable component of Rwanda's education system. The primary purpose is to generate reliable evidence of learning outcomes and describe the quality of learning in schools.

LARS is a sample-based national assessment designed to evaluate learner achievement in literacy, numeracy and science at 3 key stages of schooling: learners in lower primary (P3), upper primary (P6) and lower secondary education (S3). Since its first administration in 2011, LARS has been established as a biennial assessment, with the most recent administration in 2023.

Over the years, LARS has become an established mechanism for monitoring the quality of education and identifying gaps in learning. It provides information and actionable insights to support the Government of Rwanda to drive initiatives for improving basic education in Rwanda and ensure that all learners acquire the competencies needed to thrive in school and beyond.

1.3. Learning Achievement in Rwandan Schools - 2025

The LARS 2025 is a curriculum-aligned, sample-based assessment that aims to provide Rwanda with high quality evidence on learners' proficiency level in literacy, numeracy and science at P3, P6 and S3 grade levels, while embedding sustainable knowhow within NESA.

A key objective of LARS 2025 was to generate high-quality, reliable data to inform education policy and practice at both national and international levels. It has been designed to measure learners' learning outcomes and to examine the contextual factors that influence performance such as school environment, teaching practices, and socio demographic conditions. Notably, the assessment sought to contribute to reporting on Sustainable Development Goal (SDG) indicator 4.1.1a (United Nations, n.d.), which tracks the proportion of learners achieving minimum proficiency in reading and mathematics at key stages in education.

The assessment was conducted through a collaborative partnership between the National Examination and School Inspection Authority (NESA) and Australian Council for Educational Research (India). ACER India, with its implementation partner Education Development Consult (EDC) provided technical assistance across major assessment stages including booklet review, test administration, data analysis, and reporting.

Capacity building was an integral aspect of LARS. It was embedded within the technical support approach, and NESA personnel were actively engaged throughout the process, strengthening institutional capacity to independently manage future large-scale assessments.

Objectives of LARS 2025

Over the years, LARS has become an established mechanism for monitoring the quality of education and identifying gaps in learning. It provides information and actionable insights to support the Government of Rwanda to drive initiatives for improving basic education in Rwanda and ensure that all learners acquire the competencies needed to thrive in school and beyond.

The general objectives of LARS 2025 were to:

- assess learners' learning achievements in literacy and numeracy at P3, P6, and S3 levels, and in science at the S3 level, based on Rwanda's competency-based curriculum
- investigate learner-, classroom-, school-, and family-level factors that influence learning outcomes
- provide actionable insights to inform curriculum development and broader education system improvements
- strengthen NESA's capacity to develop high-quality, psychometrically sound assessment tools that ensure validity, reliability, and fairness
- generate nationally representative data to meet international reporting requirements for SDG indicators 4.1.1

Alignment with SDG 4

The core objective of LARS is to enable reporting on SDG 4.1.1(a) and (b) indicators that measure the 'proportion of children and young people (a) in grades 2/3; (b) at the end of primary; and achieving at least a minimum proficiency level in (i) reading and (ii) mathematics, by sex'.

In order to enable countries to report on SDG 4.1.1, the UNESCO Institute of Statistics (UIS) has developed eligibility criteria (UNESCO, 2024) for assessments. LARS 2025 was designed to meet these criteria so that the data from the assessment can be used to report on these key indicators. This report, in conjunction with other technical documents developed for LARS 2025, provides evidence that LARS 2025 meets these criteria.

This report presents the major findings from LARS 2025 and recommendations designed to strengthen the education system and subsequent LARS cycles.

2. Methodology of LARS 2025

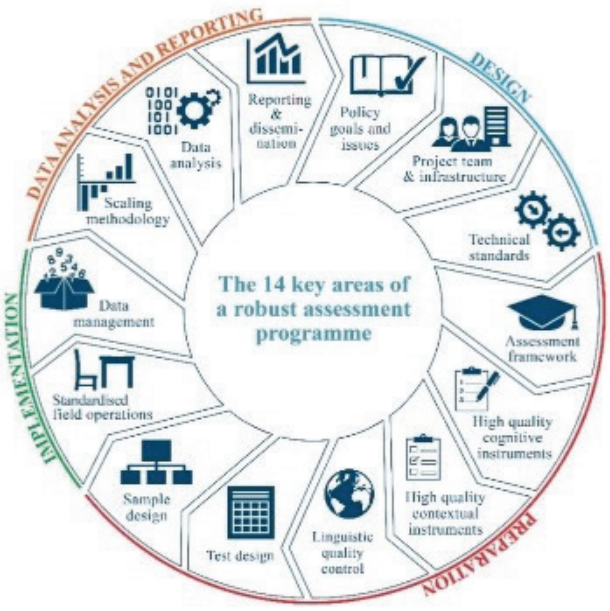
The LARS 2025 assessment covered all 5 provinces and 30 districts of Rwanda, encompassing a total of 592 schools, including 3 special needs schools. The main survey was conducted from 19 May to 22 May 2025. ACER India along with its implementation partner Education Development Consult (EDC) provided technical support to review, implement, analyse, and report the findings of the LARS 2025.

2.1. LARS 2025 process

The primary purpose of a national assessment is to support informed policymaking through the generation of robust, reliable and high-quality data. Therefore, national assessments need to be planned, designed and implemented in a systematic manner. LARS 2025 ensured this by adopting ACER's research-informed approach to robust large-scale assessments (Figure 2).

The areas illustrated in the robust assessment cycle can be grouped into 4 phases. Below is a brief outline of these processes for LARS 2025. Detailed descriptions of each stage of the assessment cycle are available in the accompanying technical reports.

Figure ES6: The ACER Robust Assessment Cycle



Source: The 14 Key areas of robust assessment Program (OECD, n.d.)

2.1.1. Design of LARS 2025

Step 1: Policy goals and issues

The questions to be addressed in LARS 2025 were defined based on the stated objectives, with an additional consideration of alignment

with the reporting for SDG 4. LARS 2025 has been designed to examine the following questions:

- How are Rwandan learners performing against the national proficiency benchmark?
- Are there significant differences in the performance among the learners of specific groups based on characteristics like gender, urban-rural location, disability status or school type?
- Which learner, teacher- and school - related factors are significantly associated with learner achievement?
- Which policy levers are most likely to reduce the observed learning gaps and accelerate overall progress towards Education Sector Strategic Plan (ESSP) and SDG targets?

Step 2: Project team and infrastructure

The existing team and infrastructure of the NESA were utilised to the extent possible. ACER and EDC also supplemented the team, as and when necessary, to ensure quality control or technical robustness.

Step 3: Technical standards

LARS 2025 adapted and followed technical standards of large-scale assessments in line with international best practices to reinforce the consistency, precision, and generalisability of data. This approach aligned with the approach for Assessments for Minimum Proficiency Levels (AMPL) as well. These standards will inform future cycles to ensure consistency and comparability.

2.1.2. Preparation for LARS 2025

Step 4: Assessment framework

Test specifications of previous cycles were reviewed and modified as necessary. The primary consideration for any modification was to ensure that the assessment remains comparable with previous cycles and also aligns with the UIS requirements for reporting against SDG 4.1.1 indicators.

The test design from LARS 2023 was also taken into consideration, while keeping in mind the number of:

- tests forms
- items per form
- historical anchor items.

Step 5: High quality cognitive tools

ACER subject experts and the NESA subject matter experts reviewed each and every item rigorously against predetermined technical specifications including ensuring the comparability of tools over time. Item development was carried out through collaborative workshops with Rwandan subject experts and ACER specialists. The process included defining item specifications based on the blueprints, drafting and reviewing items for curriculum relevance and cultural appropriateness, and piloting on small scale to check clarity, difficulty, and functioning of the items and test forms.

All pilot items underwent psychometric analyses as per Classical Test Theory (CTT) and Item Response Theory (IRT), including Rasch calibration, distractor functioning, and Differential Item Functioning (DIF). Items with poor discrimination ability, extreme difficulty, or potential bias were removed. Only items with sound psychometric and content characteristics were retained for the main test administration.

Given below is a summary of the process followed for the development of test forms:

Figure ES6: English mean scale score by class size



Step 6: High quality contextual tools

To be able to accurately inform teaching strategies and policymaking, data collected from any learner assessment should enable reporting that identifies nuanced differences between learner cohorts, school types, and other pertinent contexts. One of the objectives of the LARS was to investigate differences in learner achievement by major teacher, school, and learner characteristics, for which data were collected through the development and administration of contextual questionnaires, focus group discussions (FGDs), and stakeholder interviews conducted alongside the learner assessments.

Three contextual questionnaires, namely the learner questionnaire, parent questionnaire, and head teacher questionnaire were used in LARS 2025. The questionnaires used in LARS 2023 were retained for this cycle of LARS. FGDs with teachers and interviews with education officials and other stakeholders were conducted to gather additional information about the context.

Step 7: Linguistic quality control

inguistic quality control is more relevant in assessments where the same test booklets are administered in multiple languages. In LARS 2025, while an oral reading fluency assessment was conducted in English and Kinyarwanda, they were independent of each other. The Oral Reading Fluency (ORF) tools were retained as they were from LARS 2023 for both English and Kinyarwanda. All other assessments (including mathematics and science) were administered in English.

Step 8: Test design

The process of test construction was led by NESA, with technical support from ACER. As stated earlier while addressing national objectives, the design also incorporated measures to meet the SDG reporting requirements established by the UNESCO Institute for Statistics (UIS).

In earlier cycles of LARS, the Global Proficiency Framework (GPF) guided item development. For LARS 2025, the test specifications from previous cycles were reviewed and refined where necessary. Any modifications were made with 2 priorities in mind: maintaining comparability with earlier cycles and ensuring alignment with UIS criteria for SDG 4.1.1 reporting. In addition, all test items were systematically mapped to Rwanda's national competency-based curriculum and with the Minimum Proficiency Levels (MPLs), ensuring both curriculum relevance and consistency with international benchmarks.

The table below outlines the various assessment tools used in LARS 2025.

Table 1: Assessment tools used in LARS 2025

Grade levels	Kinyarwanda	English	Mathematics	Science	Contextual questionnaires
P3 Oral Reading Fluency	√	√			
P3		√	√		√
P6		√	√		√
S3		√	√	√	√

Two test forms per grade were used in the pilot to ensure coverage which were then merged into one test form for the main survey. Items from LARS 2023 were included as a historical link to ensure comparability. As no vertical linking was used in LARS 2025, independent reporting was done for each grade in LARS 2025.

Detailed technical processes of tool development and pilot results are documented in the appropriate technical report for LARS 2025, while on subject and grade wise test specifications have been elaborated under the respective findings section.

Step 9: Sample design

Scientific sampling methods were adopted to draw a sample to achieve appropriate levels of statistical precision and validity in the interpretation of assessment results. Section 2.2 of this report and LARS 2025 technical report provide detailed information on sampling.

2.1.3. Implementation of LARS 2025

Step 10: Standardised field operation

While it is important to develop high quality test items, it is equally important to develop mechanisms to provide similar testing conditions to all learners to get a true picture of learner achievement. To fulfil this requirement in LARS 2025, field operations manuals were developed, and administrators were trained on administration procedures, prior to test administration.

The infographic below shows the major steps adopted to ensure standardised administration of the test.

Figure 4: Administration activities during the field operations of LARS

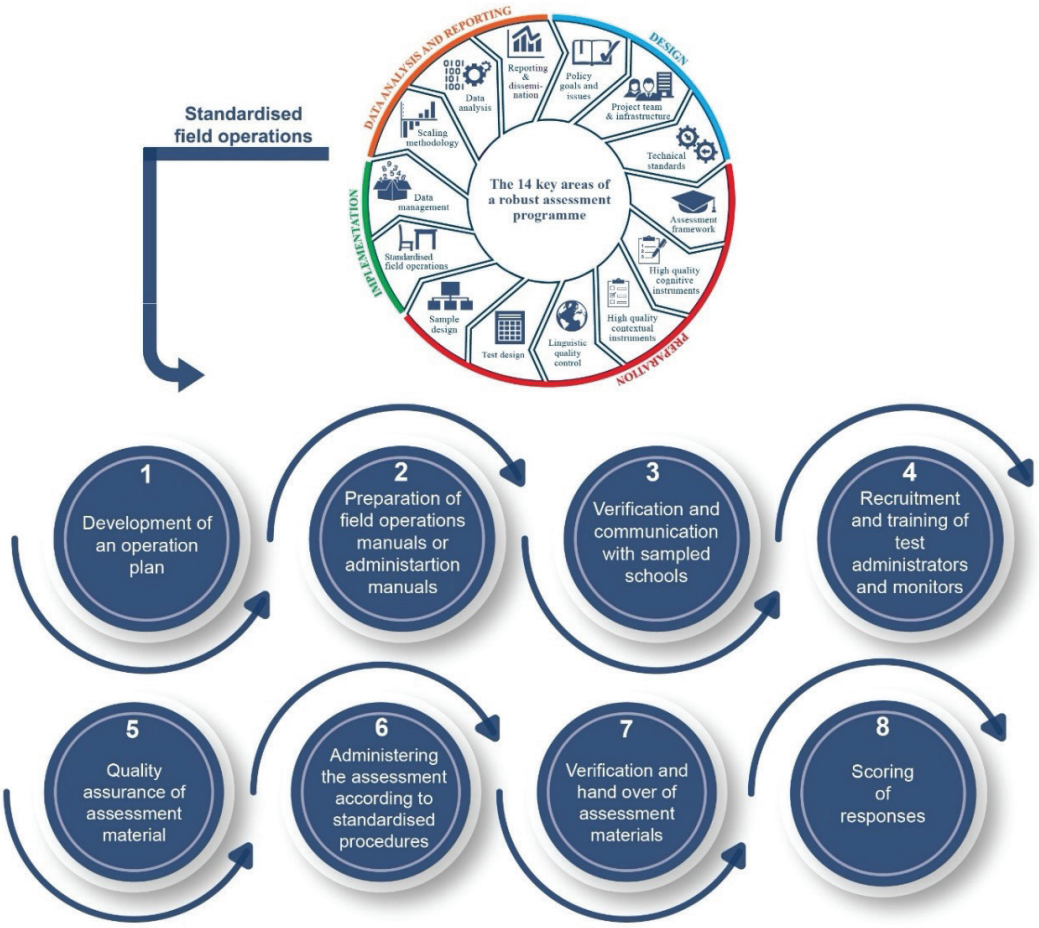
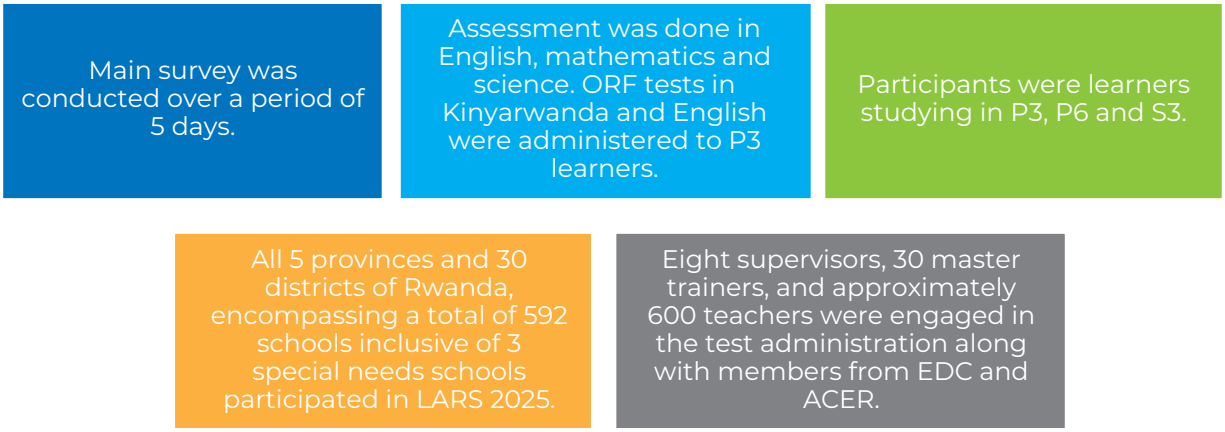


Figure 5: Highlights of the main survey test administration



The table below provides the important timelines for the main survey of LARS 2025.

Table 2: Important timelines in operation plan for LARS 2025

Activity	Timeline
Administration of pilot LARS	March 2025
Administration of LARS main survey	May 2025
Standard setting exercise	October 2025
LARS 2025 main report	November 2025

A detailed test administration schedule is given in Appendix III.

Step 11: Data management

Data management in assessments covers data security, data collection, data cleaning, and version control. Data entry for the LARS 2025 was done through the Kobo tool. All the questions in cognitive tools were multiple choice questions. Learner responses were entered into the Kobo Toolbox by the enumerators. For the questionnaires, the responses were collected on paper and later entered using the same tool.

2.1.4. Data analysis and reporting of LARS 2025

Step 12: Scaling methodology

The results of a national assessment are better understood when cognitive and contextual data are both reported on a scale through a common unit of measure. 'Scaling' refers to converting raw data into numerical indicators on the scale. Item Response Theory (IRT) is the preferred psychometric method for analysing and scaling raw data to report learner achievement.
Scaling includes item calibration and the process requires correct calibration of items and the data sufficiently fitting the IRT model. LARS 2025 employed Rasch Model and constructed a separate scale for each subject and each grade. Each scale has the mean difficulty set at 500 and a deviation of 50 scale score points.

Step 13: Data analysis

Data analysis involved the computation of various statistical parameters from the data that conform to CTT and IRT. It involved group comparisons, significance testing, and weighting to draw valid inferences about the population. LARS 2025 adopted advanced processes including the use of plausible values and replication of weights to calculate the parameters and standard errors. Regression analysis was undertaken to establish the association between various contextual variables and learning achievements.

In the benchmarking process, data analysis yields scales that provide empirical evidence of learning and progression. An additional step is then needed to link the empirical results of large-scale assessments with curricular expectations. For LARS 2025, this benchmarking was done through bookmarking method. A bookmarking exercise is a standard-setting method used in educational assessment to establish cut scores (performance standards) based on IRT scale scores. It has been discussed in detail in LARS 2025 Technical Report.

Learning achievement has been reported along 4 performance levels for all grades and subjects. Learners at the Below Partially Meets level perform well below grade-level expectations, those at the Partially Meets level are approaching grade-level expectations but have not yet fully achieved them. The Exceeds level indicates skills that surpass grade-level expectations, reflecting advanced skills and understanding. For the ORF assessments, learners were categorised into those who meet expectations and those who fall below expectations following international best practices as well as LARS 2023.

Step 14: Reporting and dissemination

LARS 2025 generated a wide range of reports while keeping in view the needs of different stakeholders to fully comprehend and utilise the information and insights derived from the learning assessment program and has plans to disseminate findings in ways that are readily accessible and useful to different stakeholders. This report is one of the series of documents intending to disseminate data and insights from LARS 2025.

2.2. Participants profile

LARS 2025 was a sample-based assessment. The eligible population comprised:

- 469,608 P3 learners,
- 208,435 P6 learners, and
- 142,847 S3 learners.

LARS 2025 adopted a multistage, stratified, Probability Proportional to Size (PPS) sampling method. To report at 95% confidence level, the calculated sample size was 592 schools from Rwanda with the various agreed stratification variables. The cluster size for each grade was 16 learners per sampled school. The selection of learners in each sampled school was done using equal probability through a systematic random sampling method.
The first stage of sampling involved the selection of schools, and the second stage was the selection of learners from sampled schools.

The school level sample comprised 540 schools, selected across all districts to ensure a nationally representative sample of learners across Levels P3, P6, and S3. A minimum of 18 schools per district were selected, in accordance with the survey guidelines. The school sampling frame included all schools with at least Level P3 and P6. Out of the total sample, 379 were schools included Level S3. To ensure adequate representation of Level S3 learners, an additional 53 schools were selected from a separate school frame consisting solely of Ordinary Level schools offering only Level S3. Thus, total number of selected schools for LARS 2025 was 592.

Details of the sampling design and procedure to draw samples have been provided in the technical report for LARS 2025.

In summary, 592 schools were selected to participate in the LARS study. Of these, 540 schools had learners in both P3 and P6, and 432 schools had learners in Level S3 (379 schools from the P3–P6 sample and 53 schools from the S3-only sample).

Table 3: Number of schools and learners sampled and participated in LARS 2025

Grade level	Number of schools sampled	Number of schools participated	Number of learners sampled	Number of learners participated	Learner participation rate
P3	540	536	8,640*	7,819	90%
P6	540	531	8,640	8,381	97%
S3	432	426	6,908	6,750	98%

(*This number represents the number of P3 learners in ORFs and pen and paper tests.)

Rwanda intends to use LARS to report on SDG 4.1 from subsequent cycles, therefore a subsample from the sampled schools were included in Assessment of Minimum Proficiency Level (AMPL) study to facilitate common person alignment.

The list of sampled schools by district has been given in Annexure. I

2.2.1. Stratification variables

Schools were explicitly stratified by district in the P3-P6 sample, and by province for the S3 only schools. Within each explicit stratum, schools were sorted by the following implicit variables with their corresponding categories:

- Location (Urban/Rural)
- Status (Public / Government Aided)
- Boarding school (Day / Mixed / Boarding)
- Level (Primary / Combined / Secondary)
- School size, measured by learner enrolment in target year levels

Nearly 15% participants were from the schools located in urban areas.

Table 4: Participation of LARS 2025 by location

Location	P3		P6		S3	
	Number of learners	Proportion of learners	Number of learners	Proportion of learners	Number of learners	Proportion of learners
URBAN	1142	14.6%	1189	14.2%	1058	15.7%
RURAL	6677	85.4%	7192	85.8%	5692	84.3%
Total	7819	100.0%	8381	100.0%	6750	100.00%

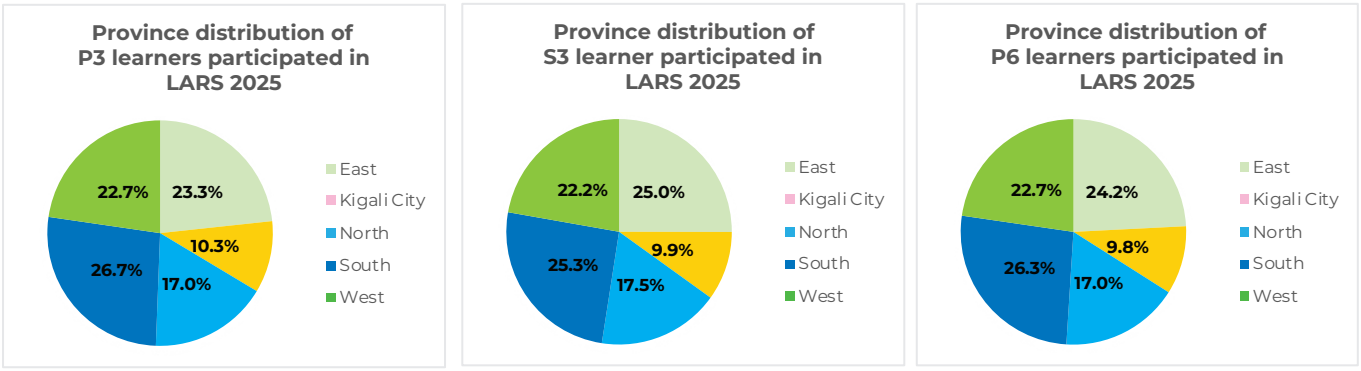
Further details on learner sample and participation in LARS 2025 are available in the technical report.

The sample also included four Special Education Needs (SEN) schools. However, one SEN school did not participate because it serves learners with intellectual disabilities for whom the standard assessment was not appropriate. As a result, the final number of participating schools was 592

2.2.2. Participation in LARS 2025

The tables below show the actual participation of learners in LARS 2025 as per the PPS derived from the sampling frame. For each school, the expected number of learners to participate was 16 or all learners from the target level enrolment, whichever is lower. Learners who provided less than 4 valid responses were treated as non-participants and data corresponding to those learners were excluded from the analysis.

Figure 6: Participation in LARS 2025 by province



3. Comparability of LARS 2023 and LARS 2025 results

Large scale assessments typically aim to track learning outcomes over time. For this purpose, it is essential that assessment cycles use consistent sampling procedures, measurement models, and reporting frameworks across years. However, LARS 2023 and LARS 2025 were designed using fundamentally different methodologies. Because of these deliberate technical improvements in 2025, the two cycles cannot be directly compared.

This chapter explains, in accessible and nontechnical language, why results from LARS 2023 and LARS 2025 should not be interpreted as trend data. It highlights key methodological changes in sampling, scoring, and reporting that make cross cycle comparisons statistically invalid.

3.1. Key Difference 1: Sampling design

Sampling determines who participates in the assessment and how well the selected group represents the national student population. The two LARS cycles adopted different sampling approaches, which influence the validity, comparability, and accuracy of results.

LARS 2023 Sampling Approach

LARS 2023 used a two-stage stratified sampling design, where:

- **Stage 1 (School selection):** Schools were chosen using simple random sampling.
- **Stage 2 (Student selection):** Sixteen students were selected from those present on the day of assessment through systematic random sampling.
- **Replacements:**
- Replacement schools were allowed.
- Student substitutions (peer replacement) were also permitted.

While these procedures allowed operational flexibility, they increased the risk of:

- non-response bias (if absent students differed systematically from those present),
- enumerator driven substitution,
- deviations from the intended sampling frame.

LARS 2025 Sampling Approach

LARS 2025 adopted a more rigorous and internationally aligned process:

- **Stage 1 (School selection):** Schools were sampled using Probability Proportional to Size (PPS), ensuring that larger schools had a higher probability of selection. Pre-identified replacement schools were selected only from within the frame.
- **Stage 2 (Student selection):** Students were selected from official enrolment lists, not from students present on test day.
- **Replacements:**
- No student substitutions were allowed.
- Any detected replacements were removed before analysis.

Implications of Differences

Because student and school selection methods differ significantly across cycles:

- The representativeness of the samples differs.
- The probability of selection for students is not aligned across cycles.
- Weighting structures vary and cannot be harmonised across years.
- LARS 2025 produces more reliable and accurate sub national estimates due to its enhanced methodology.

Therefore, population estimates (e.g., mean scores, proficiency achievement, national percentages) from the two cycles should not be compared.

3.2. Key Difference 2: Measurement model

Measurement models define how learning is quantified and what the scores mean. LARS 2023 and LARS 2025 used entirely different models, resulting in scores that are not comparable.

LARS 2023: Classical Test Theory (CTT)

LARS 2023 used Classical Test Theory, which:

- Calculates scores based simply on the number of correct answers.
- Treats all questions as equally important.
- Does not adjust scores for item difficulty or discrimination.
- Sets performance levels based on expert judgment (e.g., Angoff's method), not statistical modelling.

CTT provides basic information but does not support scale stability across assessment cycles. This means raw scores from 2023 cannot be put on the same scale as scores from later years.

LARS 2025: Item Response Theory (IRT)

LARS 2025 used the Rasch model, an advanced IRT framework commonly used in international assessments.

IRT offers multiple advantages:

- Student performance is estimated on a continuous scale that reflects underlying ability.
- Item difficulty is explicitly modelled.
- Results incorporate plausible values (PVs), which allow robust population level inference.
- The model supports the creation of learning progressions, enabling meaningful interpretation of scores.

Implications of Differences

Because CTT raw scores and IRT scale scores are based on different principles:

- They do not measure the same construct.
- They do not share a common metric or underlying structure.
- Achievement levels in 2023 (judgment based) differ fundamentally from those in 2025 (data driven and empirically scaled).

Comparing average performance, proficiency levels, or score distributions between 2023 and 2025 is therefore not statistically

3.3. Key Difference 3: Reporting approach

The reporting frameworks define how results are communicated and what the numbers represent.

LARS 2023 Reporting

- Reported percentages of students in each achievement category.
- Achievement categories were based on raw score cut off points determined through expert judgment.
- No developmental or vertical scale was used.
- Percentages reflect raw score frequencies, not underlying proficiency.

LARS 2025 Reporting

- Reports student performance on a Rasch based proficiency scale.
- Uses plausible values to produce estimates at national, provincial, and district levels.
- Achievement levels are based on empirical distributions of the scale and correspond to a meaningful learning continuum.

Implications of Differences

- Percentages in LARS 2023 reflect raw-score thresholds.
- Percentages in LARS 2025 reflect latent proficiency distributions.
- These represent different concepts, not the same phenomena.

Thus, comparing proportions of students in achievement levels across the two cycles is not appropriate.

3.4. Summary

LARS 2023 and LARS 2025 differ in:

1. Sampling design
2. Weighting and variance estimation
3. Measurement model (CTT vs IRT)
4. Score scales and proficiency levels
5. Reporting frameworks

Because these components changed at foundational levels, the assessment systems produce different kinds of information. The two cycles were not designed to generate trend data, and any attempt to compare results may lead to incorrect interpretations.

The following table summarises the key technical differences:

Table 5: Key differences in LARS 2023 and 2025

Criteria	LARS 2023	LARS 2025	Implications
Sampling	SRS for schools; students present on test day; substitutions allowed	PPS for schools; enrolment-based student lists; no substitutions	Not comparable due to different probabilities of selection and representativeness
Weighting & variance estimation	Basic weighting; limited adjustment for replacements	Full population modelling with replicate weights	Standard errors and estimates cannot be aligned
Measurement model	CTT (raw scores)	IRT (Rasch scale scores with plausible values)	Raw scores ≠ scale scores. different constructs measured
Reporting framework	Percentages based on raw score thresholds	Proficiency levels based on learning scale	Achievement percentages not comparable

4. Findings of LARS 2025: languages

In LARS 2025, Language assessment was conducted for 2 languages: English and Kinyarwanda. Achievement test in English had two different components: an oral reading fluency test, and a pen-and-paper test assessing reading comprehension and associated areas, whereas Kinyarwanda included only one component – an oral reading fluency test. The assessments were designed keeping in mind the requirements of aligning them with the national curriculum, SDG 4.1.1 goals and UIS reporting criterion.

This chapter begins by presenting the assessment design for all 3 instruments. The findings for each component are then presented based on IRT-derived mean scale scores and grade-level performance standards. Subsequent sections focus on the reading comprehension component and examine performance variations across province, location, district, school status, and shift, and results disaggregated by gender to highlight patterns in achievement among different groups.

4.1. Language assessment design: English

Oral reading fluency

The ORF test was administered to P3 learners to assess their ability to read accurately and fluently in English. The ORF tool was retained from LARS 2023. It consisted of two parts:

- Reading words in a connected text – learners were provided with a short passage of 77 words. While they were given adequate time to complete the passage, their fluency was measured within a one-minute period. During this time, the number of words read correctly was recorded as the primary indicator of fluency.
- Comprehension questions – following the oral reading, learners responded to comprehension questions based on the passage, and their correct responses were noted.

Further, a stop rule was applied where learners who could not read the first 5 words correctly were asked not to proceed. This procedure offered valuable insights into both learners' reading fluency and their comprehension abilities.

Pen-and-paper test

The main focus area of pen-paper test in English was reading comprehension. Another key emphasis was assessing whether learners have the necessary vocabulary, grammar, and spelling skills to effectively engage with the assessment content. This approach was consistent with the requirement for SDG 4.1.1 reporting.

The Programme for International Learner Assessment (PISA) framework (OECD, 2000) suggests that reading comprehension goes beyond decoding and literal comprehension and should incorporate understanding and reflecting on texts. The framework further mentions that reading literacy 'involves the ability of individuals to use written information to fulfil their goals, and of complex modern societies to use written information to function effectively'. Following this approach, in the grade P3, P6 and S3 reading comprehension section, learners were required to locate, identify, interpret and infer information in and about texts.

In general, content standards for grades P3, P6 and S3 in English language are in many respects the same; however, the content differs across grades in terms of a range of features related to text appropriateness for the grade, as well as grammatical and lexical complexity of various types. It must be noted that separate scales were developed for each grade and therefore, comparison of performance across grades is not possible in LARS 2025.

For the reading comprehension component, the LARS assessment included two broad categories of texts: informative texts and narrative texts of length between 20–35 words in P3, 60-180 words in P6 and 70–320 words in S3.

Informative/descriptive texts: non-fictional texts that involved the use of language to represent ideas and information related to people, places, events, things, concepts, and issues. For example, reports, descriptions, biographies, explanations, news articles, etc.

Narrative Texts: fictional or non-fictional texts that used language to tell a story or recount events. They were organised around characters, settings, and a sequence of events, often including a problem and its resolution.

The overall specification for the English pen-and-paper assessment are presented in the table below.

Table 6: Test specification for English pen-and-paper test

Feature	Details
Grades	P3, P6 and S3
Test time	75 minutes
Number of test forms	1 per grade
Length of texts	Grade P3: maximum 35 words Grade P6: maximum 170 words Grade S3: maximum 320 words
Number of items (per booklet)	30
Item type	Selected Response Type (Multiple Choice Questions)
Horizontal linking	No
Vertical Linking	No
Historical Linking	Yes

The table below shows the number of test items according to content area in LARS 2023 and LARS 2025. The distribution of items across strands was modified in the 2025 cycle to ensure alignment with UIS criteria requirements on SDG 4.1.1 reporting, with a much larger emphasis on reading comprehension.

Table 7: Content areas of English with number of items in LARS 2025

Content area/strand	P3		P6		S3	
	2023	2025	2023	2025	2023	2025
Reading comprehension	7	18	17	20	14	20
Grammar	6	3	4	4	13	7
Vocabulary	14	6	8	6	3	2
Spelling	3	3	0	0	0	1
Total	30	30	29*	30	30	30

*There was an error in one of the questions in the 2023 paper.

Each items targeted to measure one of the 3 cognitive levels, and the proportions of cognitive levels in the test were decided based on global best practices. Usually, as grade levels increase, learners are expected to demonstrate higher order skills.

The table below shows the number of test items according to cognitive skills in LARS 2023 and LARS 2025.

Table 8: Cognitive skills assessed in LARS 2023 and LARS 2025 for English

Cognitive skills	Knowing		Understanding		Applying	
	2023	2025	2023	2025	2023	2025
P3	14	7	7	20	9	3
P6*	8	6	19	22	2	2
S3	9	5	14	20	7	5
Total	31	18	40	62	18	10

*There was an error in one of the questions in the 2023 paper.

4.2. Language assessment design: Kinyarwanda

Kinyarwanda is the national language of Rwanda and is spoken by nearly the entire population. It serves as a unifying mother tongue across different communities and is considered central to Rwandan culture and identity. While English and French are also official languages, Kinyarwanda remains the primary means of communication for about 99% of Rwandans, making it a symbol of unity and belonging.

Oral reading fluency

In the Kinyarwanda ORF assessment, P3 learners were presented with 2 tasks:

- Task 1 – 50 familiar words presented as a list in isolation
- Task 2 – reading passage with 60 words followed by 7 test items

Both tasks were adopted from LARS 2023. Task 1 comprised a word list and learners were required to read as many words as possible within one minute, with the number of words read correctly recorded as the key measure. Further, a stop rule was applied where learners who could not read the first 5 words correctly were asked not to proceed. In addition, learners read a connected passage of 60 words within one minute and then responded to 7 comprehension questions, with the number of correct answers recorded.

This process provided insights into both learners' ability to recognise and read words in isolation as well as their reading comprehension while reading aloud, forming an important component of the LARS assessment.

4.3. Language assessment findings

This section describes the performance of learners in Kinyarwanda (ORF) and English (ORF and reading comprehension) in LARS 2025. Performance in ORF Kinyarwanda and English are described initially followed by performance in the pen-and-paper test.

4.3.1. Learning achievement in Kinyarwanda ORF

As described above, the Kinyarwanda ORF assessment was based on 2 tasks that required learners to read isolated words (50 words) and a connected passage with 60 words and answer the associated comprehension questions (7) to indicate whether learners had read with comprehension. The ORF was only conducted in P3.

For both tasks, performance in ORF was measured through a single measure which indicated the speed/rate of reading. This was reflected in the correct words read per minute measure (CWPN).

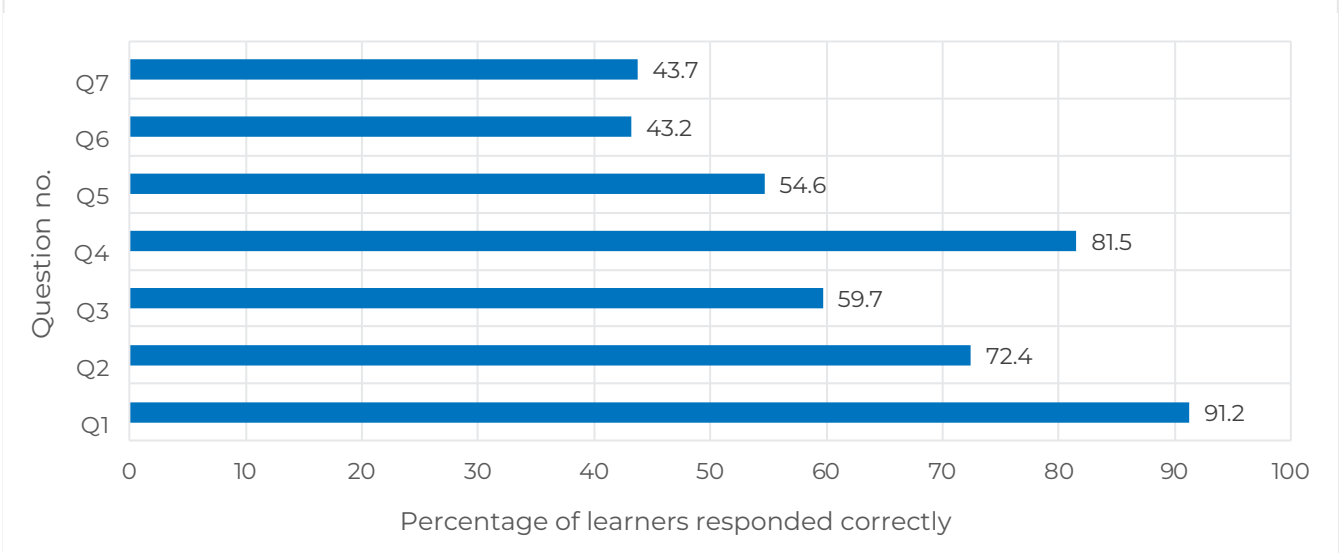
The table below indicates both the average words read per minute by learners as well as the average correct words per minute for 2025. The methodology used for data analysis in LARS 2021 and LARS 2023 differed from that used in LARS 2025. In LARS 2023, national standard setting for learning achievement was conducted using the Angoff's method, whereas in LARS 2025, the Bookmark method was applied. This may lead to significant differences in the results and therefore, comparisons are not provided in this report.

Table 9: Performance of P3 learners in Kinyarwanda ORF

Task	Average correct words read per minute	Average words read per minute
Task 1 (reading words in isolation)	12	34.7
Task 2 (reading words in a continuous text)	18.1	45

The figure below shows the response of learners to the comprehension questions in task 2. The figure indicates that learners comprehended the passage adequately as the percentage of correct response to most of the questions ranged from about 43% to 91%. The most difficult questions were Q6 and Q7, which were based on information provided in the latter part of the reading text.

Figure 7: Response of learners to the comprehension questions in Kinyarwanda ORF



The benchmarking exercise mentioned in chapter 2 was carried out for the Kinyarwanda ORF as well. Based on the benchmarking exercise, learners were categorised into those who met expectations and those who did not. The benchmarks set by expert judgement decided the number of words a learner was expected to read in one minute in isolation, as part of a continuous text and the number of questions a learner was expected to answer correctly based on the text that was read.

For Kinyarwanda, learners were expected to read 35 words per minute for both tasks (in isolation and as part of a text) and the number of questions to be answered based on the text was set at 6 out of 7 questions.

Table 10: Description of levels in Kinyarwanda ORF

Words read per minute	Level	Descriptions
Statements below are to be read as learners at this level are likely to		
35 words (both in isolation and as part of a connected text)	Meets Expectations	read the defined number of grade-level words in isolation and as part of a connected text; shows evidence of comprehension when reading the connected text
Less than 35 words	Does Not Meet Expectations	be unable to read the defined number of grade-level words in isolation and as part of a connected text (may read some words); shows little evidence of comprehension when reading the connected text

Figure 8 indicates that almost 49% of learners were able to read at least 35 words per minute in Kinyarwanda and thus met expectations. Similarly, more than 70% of learners were able to read the same number of words when presented as part of a continuous texts (see Figure 9).

In both tasks, the proportion of female learners meeting expectations was higher than male learners.

Figure 8: Proportion of learners meeting expectations

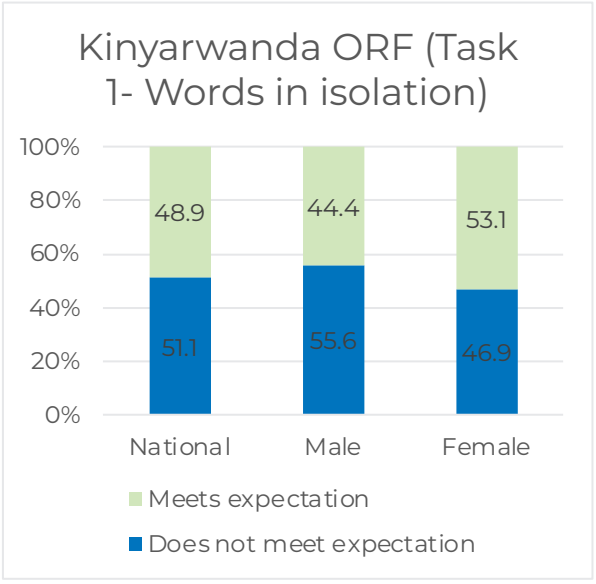


Figure 9: Proportion of learners meeting expectations

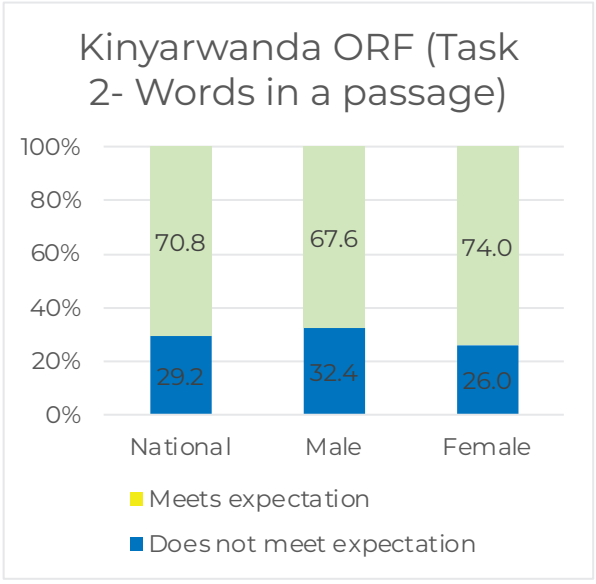
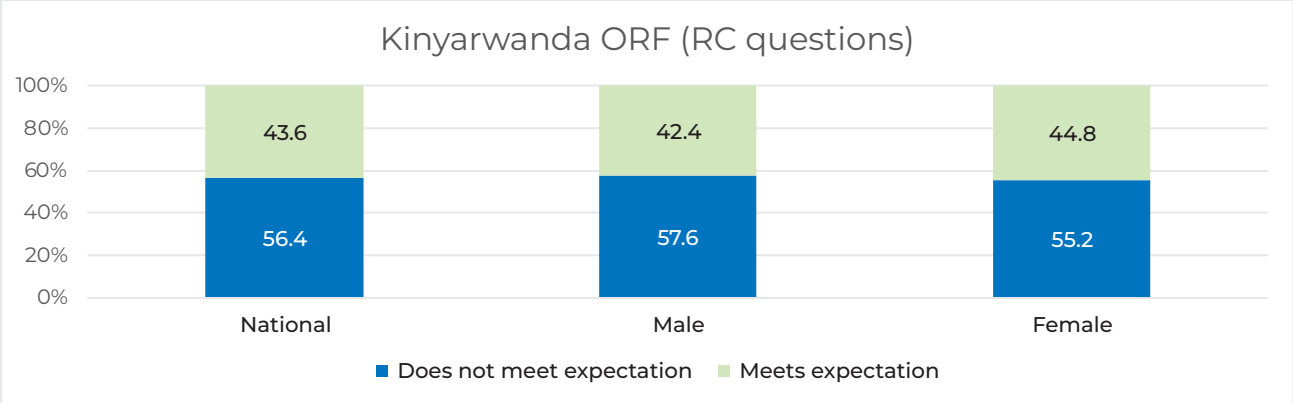


Figure 10 below shows the proportion of learners who were able to meet expectations in answering 6 out of the 7 comprehension questions based on the text they read. The performance was similar for both male and female learners.

Figure 10: Proportion of learners meeting expectations in comprehension questions



As explained in chapter 3, the methodology used for data analysis in LARS 2021 and LARS 2023 differed from that used in LARS 2025. In LARS 2023, national standard setting for learning achievement was conducted using the Angoff's method, whereas in LARS 2025, the Bookmark method was applied. This may lead to significant differences in the results, and therefore learner achievements in 2025 have not be compared with 2025 performance data.

4.3.1.1. Learning achievement by province in Kinyarwanda ORF

In both reading tasks, reading words in isolation and reading words in a connected text, more learners from North Province and West Province meet expectations than the national proportion of learners. In all other provinces, fewer learners meet expectations than the national level. However, when responding to the questions assessing comprehension of the text, more learners in Kigali City and South Province meet expectations than the national level.

Interestingly, North Province has the lowest proportion of learners meeting expectations when responding to the reading comprehension questions based on the connected text. This indicates that while learners are reading, they are not able to comprehend what they read as well as expected.

Further study would need to be undertaken to understand the differences in standard Kinyarwanda and regional dialects . Regional accents have some differences from standard Kinyarwanda (Gabriel, 2018) and students may be operating at the word level learning before transitioning to reading comprehension.

Figure 11: Proportion of learners meeting expectations in reading words in isolation by province

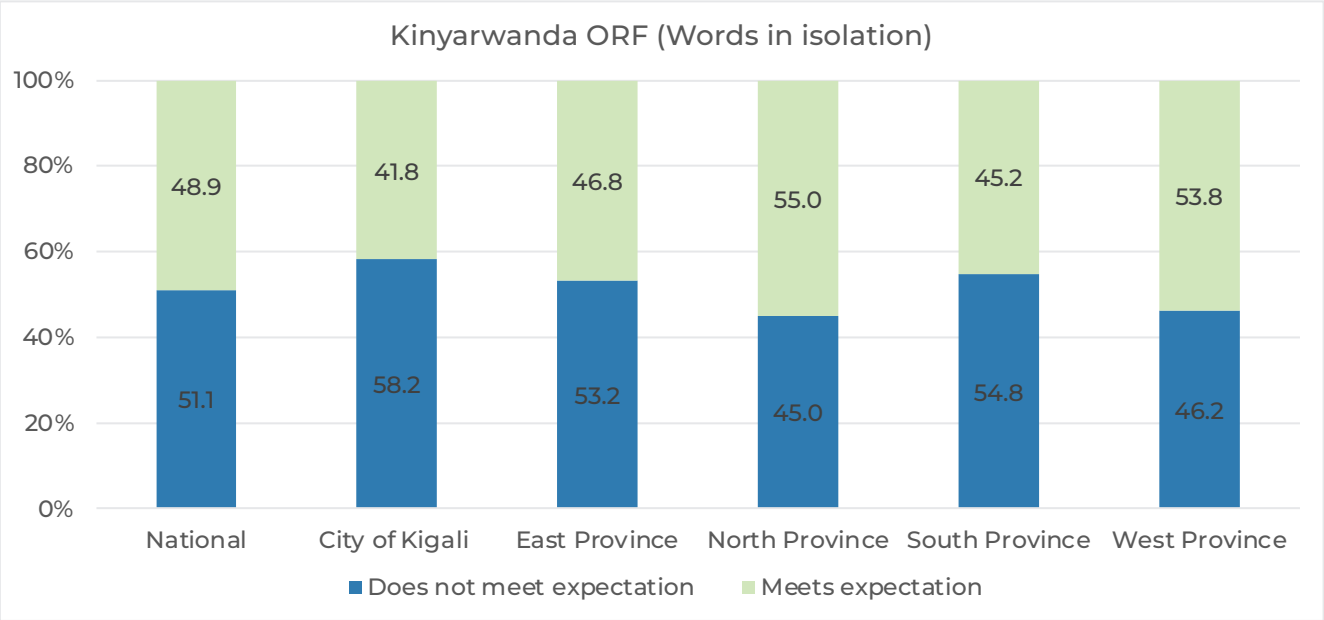


Figure 12: Proportion of learners meeting expectations in reading words in a story by province

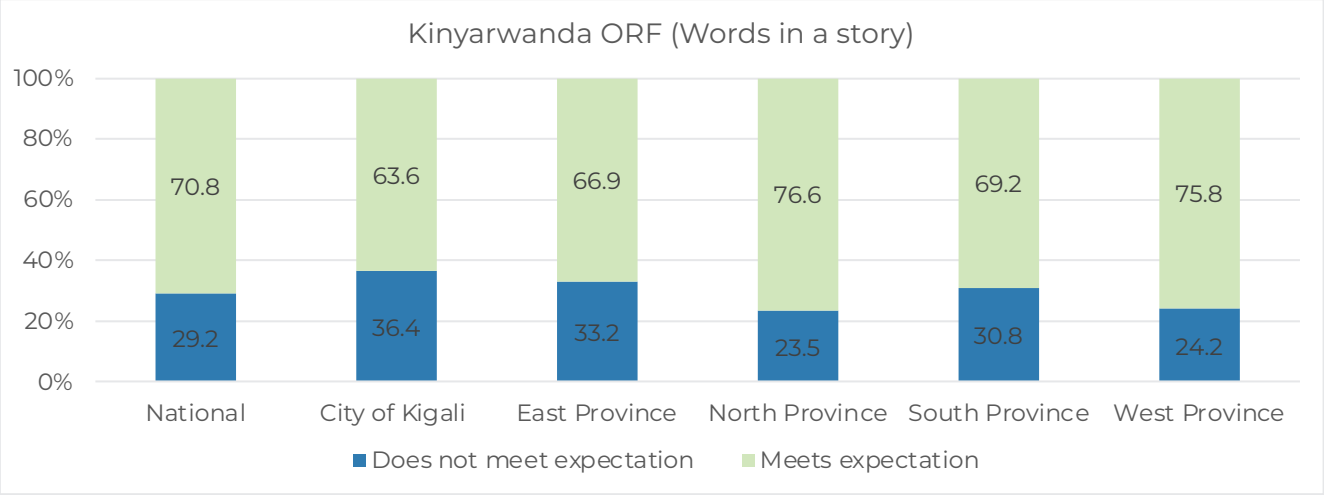
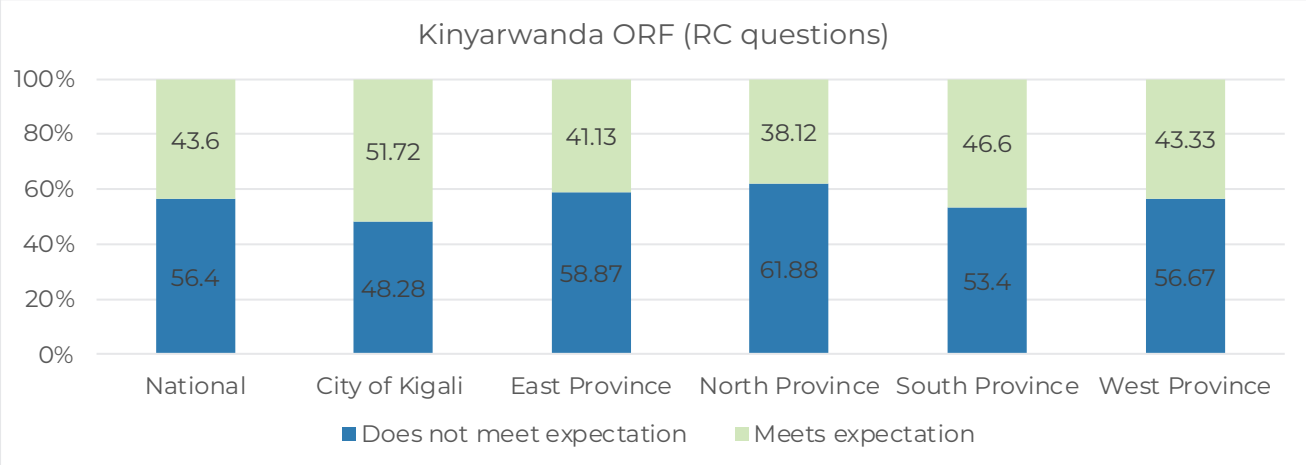


Figure 13: Proportion of learners meeting expectations in reading comprehension by province



4.3.1.2. Learning achievement by gender in Kinyarwanda ORF

In all three tasks a higher proportion of female learners meet expectations than their male counterparts. However, the gap reduces when comprehension of the text is assessed through questions. This suggests that learners are able to decode (match sound to the letters) much better than they are able to comprehend.

Figure 14: Proportion of learners meeting expectations in reading words in isolation by gender

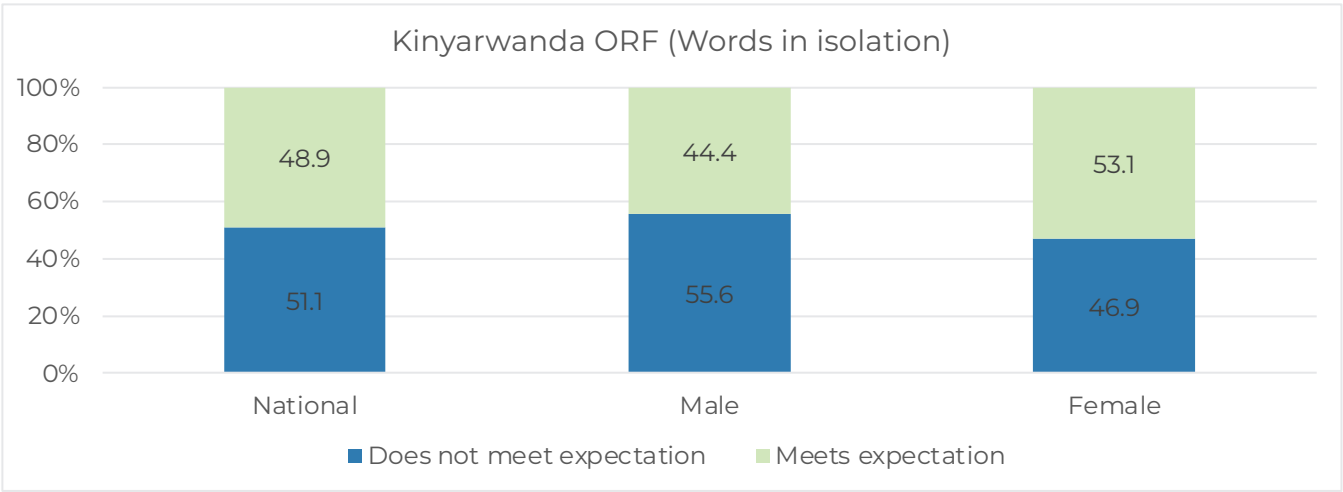


Figure 15: Proportion of learners meeting expectations in reading words in story by gender

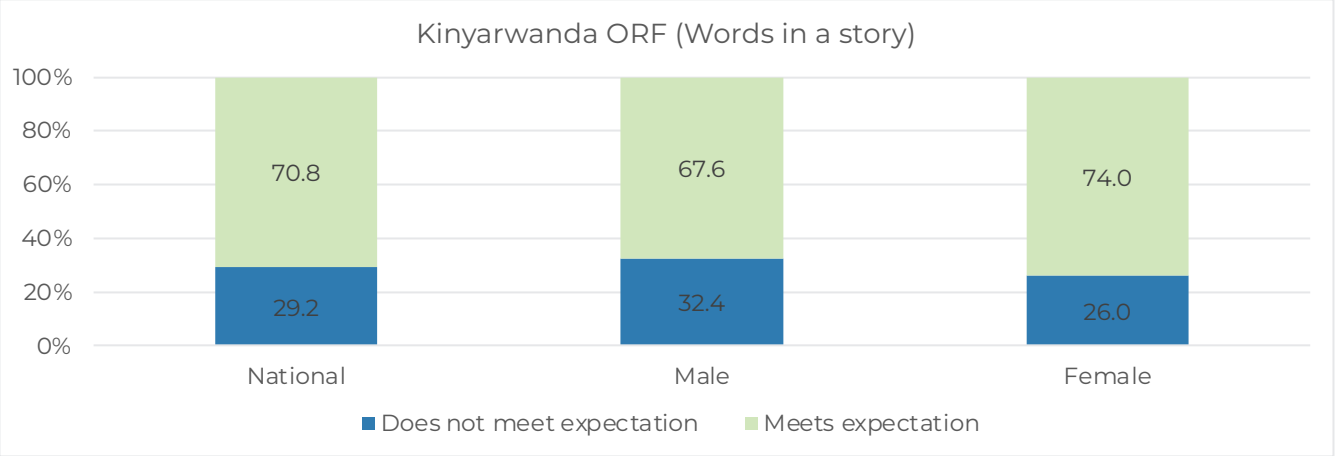
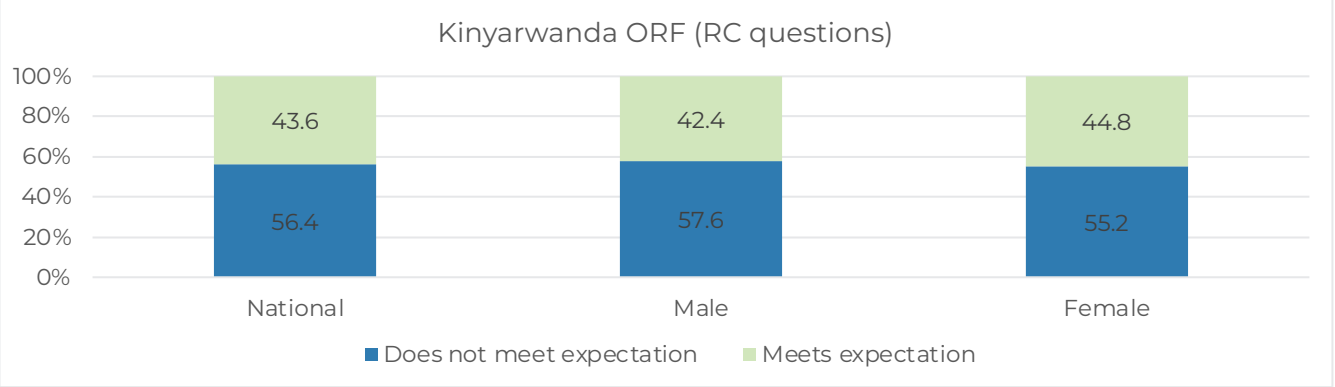


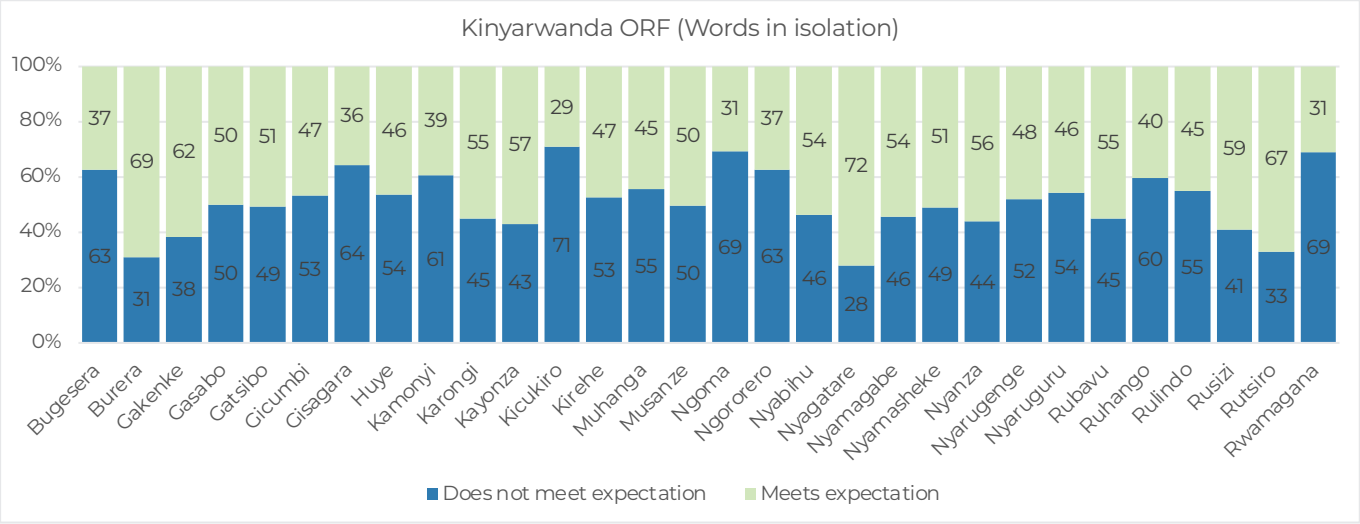
Figure 16: Proportion of learners meeting expectations in reading comprehension by gender



4.3.1.3. Learning achievement by district in Kinyarwanda ORF

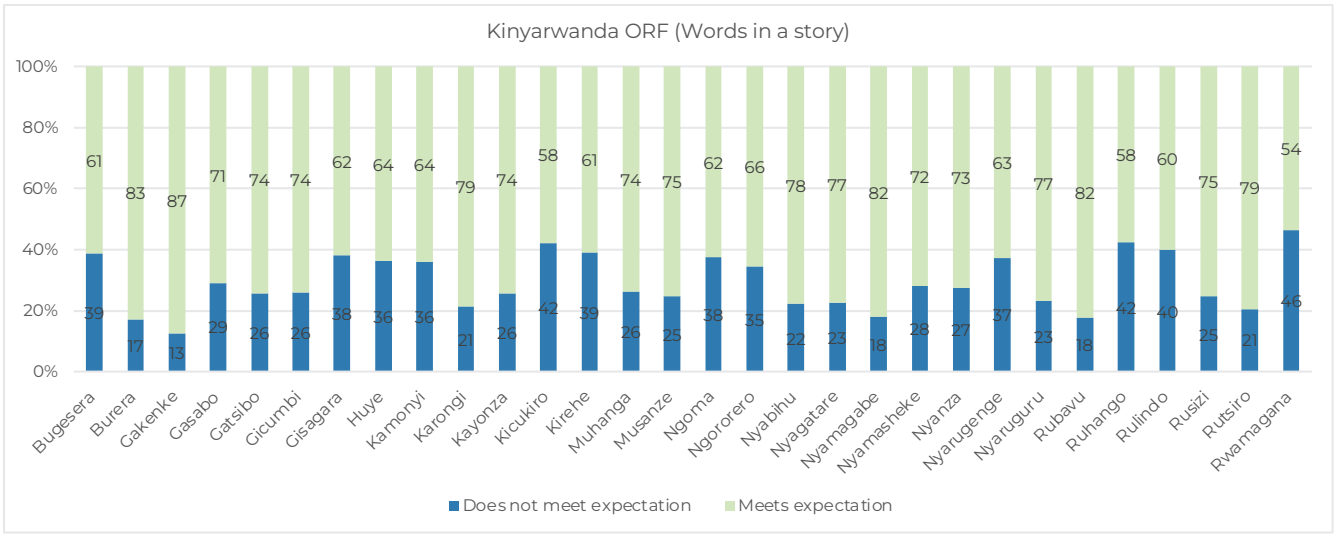
When reading words in isolation, in 15 of the 30 districts the proportion of learners meeting expectations is above the national level. Nyagatare (72%), Burera (69%) and Rutsiro (67%) have the highest proportion of learners meeting expectations. The districts with the lowest proportion of learners meeting expectations are Kicukiro (29%), Ngoma (31%) and Rwamagana (31%).

Figure 17: Proportion of learners meeting expectations in reading words in isolation by district



When reading words as part of a connected text, the proportion of learners meeting expectations is above the national level in 18 of the 30 districts. Rubavu (87%), Burera (83%) and Gakenke (82%) have the highest proportion of learners meeting expectations. The districts with the lowest proportion of learners meeting expectations are Rwamagana (54%), Ruhango (58%) and Kicukiro (58%). It is worth mentioning that the high performing districts are also from the North and West Provinces. However, the high performing districts on Kinyarwanda did not demonstrate consistent high performance in other learning areas, particularly English.

Figure 18: Proportion of learners meeting expectations in reading words in story by district



The proportion of learners meeting expectations is above the national level in only 14 of the 30 districts when responding to comprehension questions on the text that learners read. Nyanza (61%), Kamonyi (58%) and Kicukiro (53%) have the highest proportion of learners meeting expectations. The districts with the lowest proportion of learners meeting expectations are Gicumbi (27%), Nyaruguru (32%) and Rulindo (35%).

4.3.2. Learning achievement in English ORF

The ORF test was only conducted in P3. As described above the English ORF assessment, was based on a single task that required learners to read a connected passage with 77 words and answer the associated comprehension questions (8) to indicate whether learners had read with comprehension. There was no task to read words in isolation, unlike in Kinyarwanda.

Performance in ORF was measured through a single measure which indicates the speed and accuracy of reading. This was reflected in the correct words read per minute measure (cwpm).

Table 11: Description of levels in English ORF

Words read per minute	Level	Descriptions
Statements below are to be read as learners at this level are likely to		
30 words	Meets Expectations	read the defined number of grade-level words as part of a connected text; shows evidence of comprehension when reading the connected text
Less than 30 words	Does Not Meet Expectations	be unable to read the defined number of grade-level words as part of a connected text (may read some words); shows little evidence of comprehension when reading the connected text

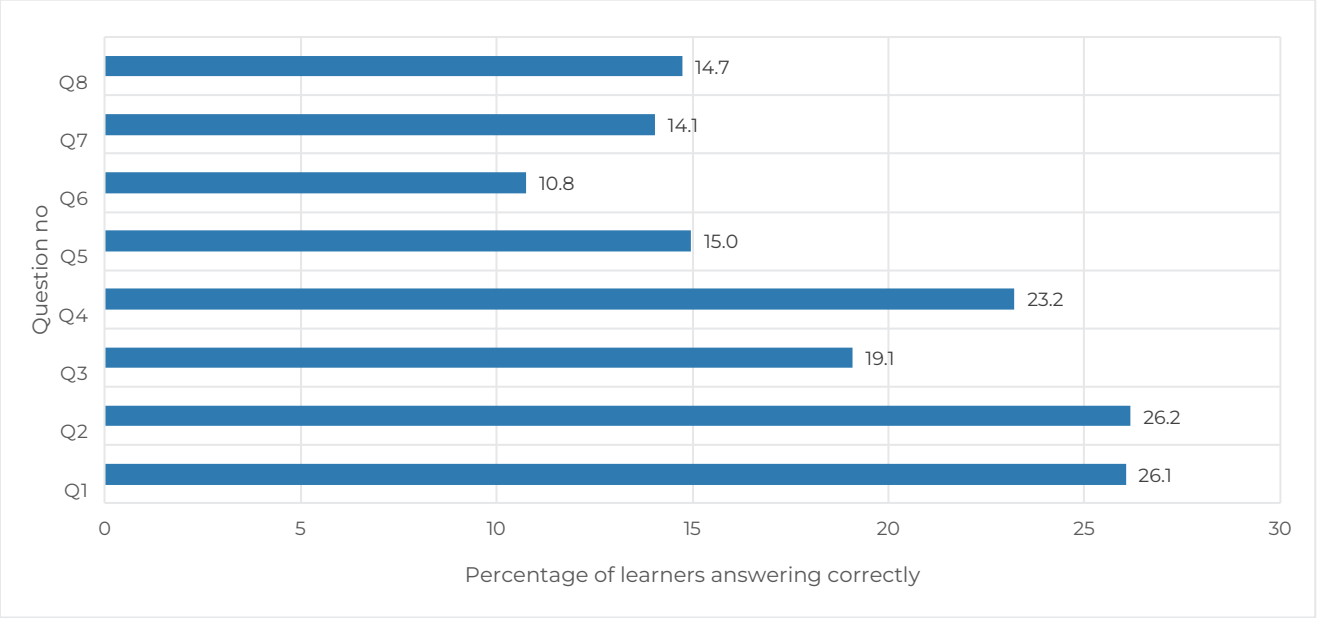
The table below indicates both the average words read per minute by learners as well as the average correct words per minute. The high degree of variation in the data makes it difficult to draw reliable conclusions based on averages.

Table 12: Performance of P3 learners in English ORF

N	Mean wpm	SD	Mean cwpm	SD
4302	41.7	33.3	13.3	56.7

The figure below shows the response of learners to the comprehension questions. The figure indicates that learners did not comprehend the passage very well as the percentage of correct response to most of the questions was below 25.

Figure 19: Response of P3 learners to the comprehension questions in English ORF



Based on the benchmarking exercise, learners were categorised into those who met expectations and those who did not. The benchmarks set by expert judgement decided the number of words a learner is expected to read in one minute as part of a continuous text and the number of questions a learner is expected to answer correctly based on the text that was read.

The number of words a learner was expected to read was set at 30 words per minute and the number of questions to be answered based on the text was set at 5 out of 8 questions.

Figure 20: Proportion of learners meeting expectations reading words

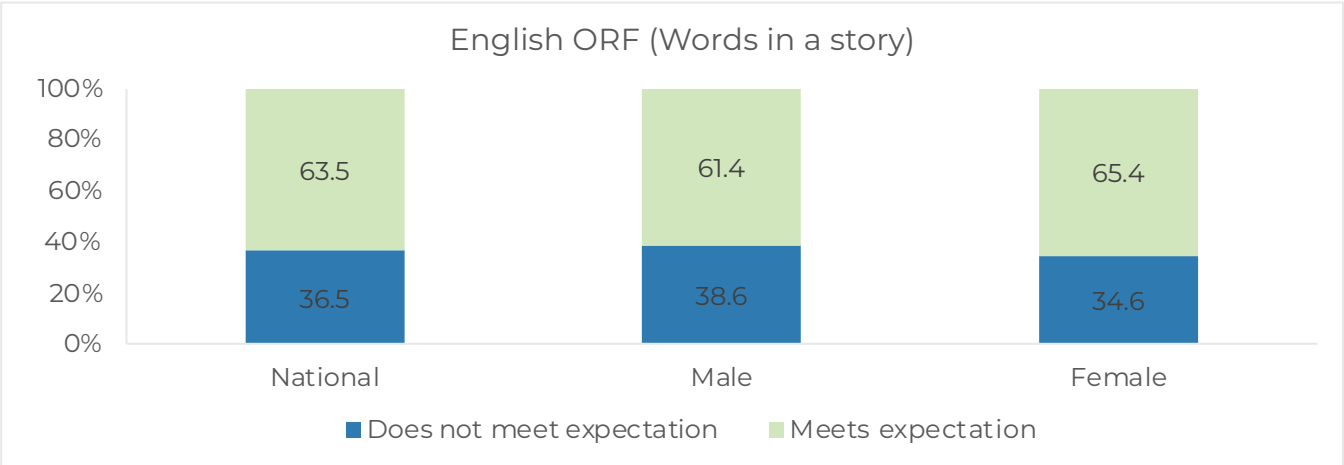
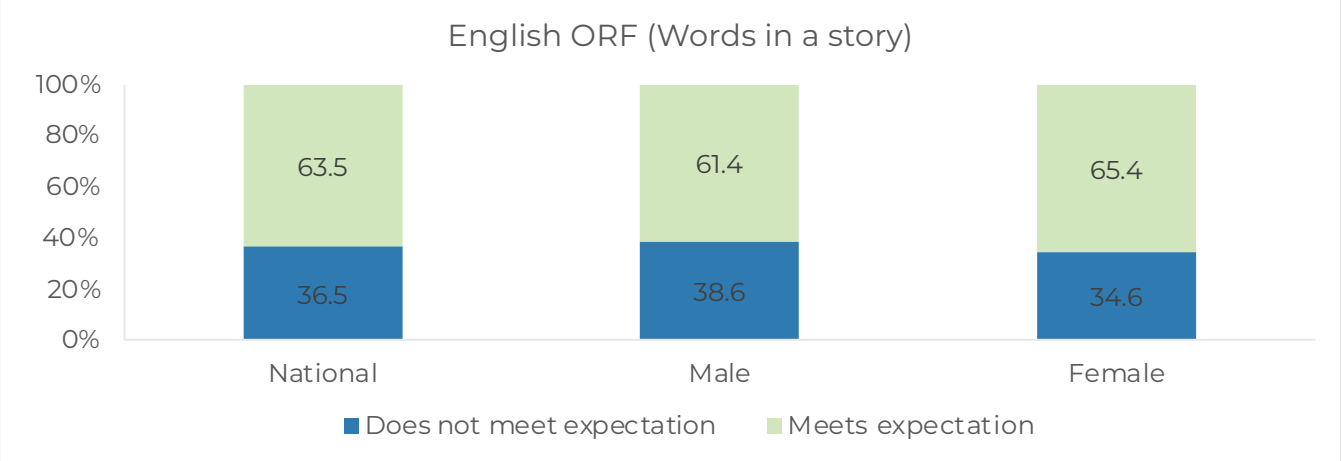


Figure 20 indicates that almost 63% of learners were able to read 30 words per minute in English and thus meet expectations. The proportion of female learners meeting expectations was higher than male learners at 65% to 61%.

The proportion of learners who were able to meet expectations in answering comprehension questions based on the text they read was less than a quarter of learners (24%). The performance was similar for both male and female learners (please see figure below).

Figure 21: Proportion of learners meeting expectations in comprehension questions



As mentioned above, due to difference in LARS 2023 and LARS 2025 methodology trend over 2023 was not analysed.

4.3.4. Learning achievement by province in English ORF

When reading words in a connected text and responding to comprehension questions on the text, more learners from North Province and the City of Kigali meet expectations than the national proportion of learners. In all other provinces, fewer learners meet expectations than the national level. This indicates that in Kigali and North Province, students are reading well and with comprehension.

Figure 22: Proportion of learners meeting expectations in reading words in story – English by province

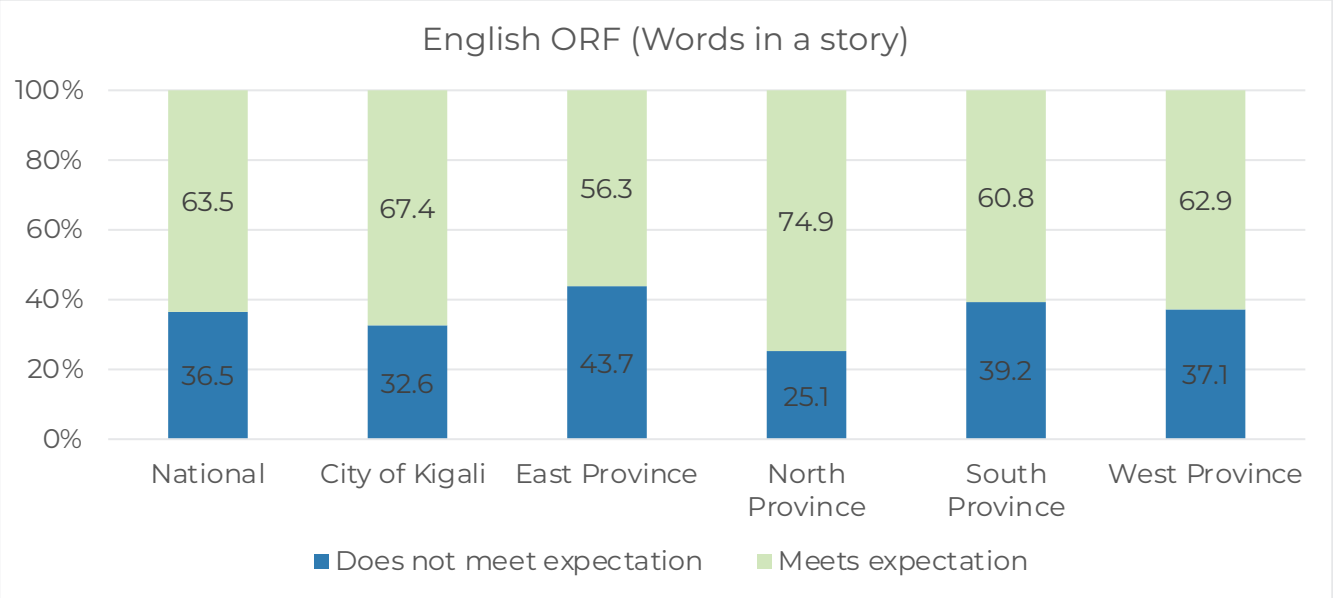
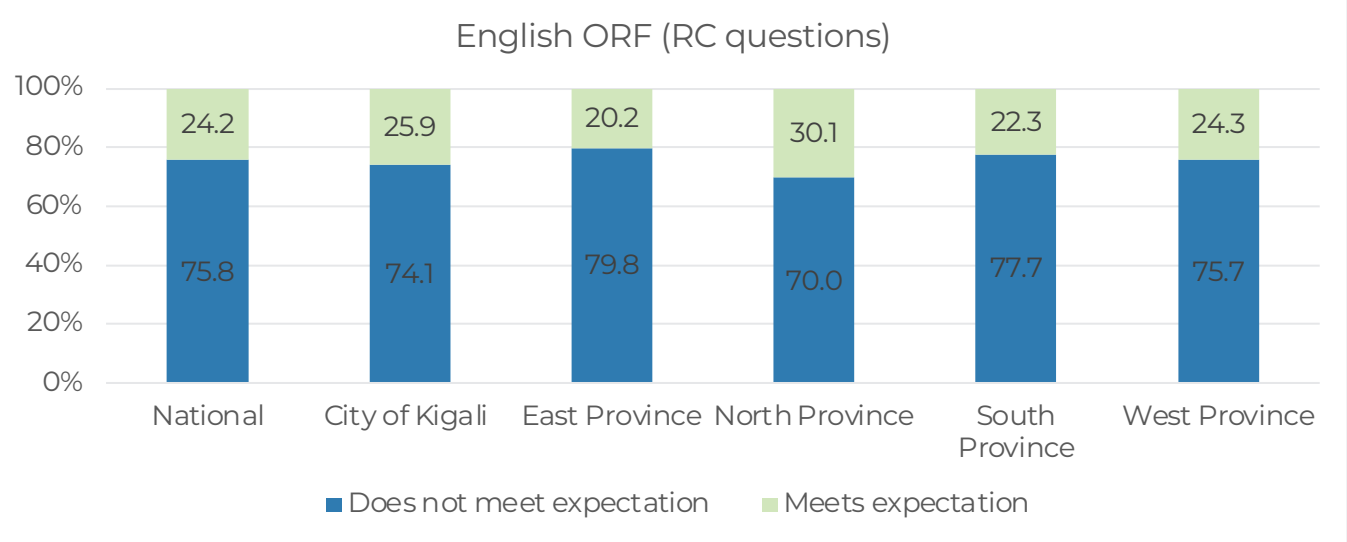


Figure 23: Proportion of learners meeting expectations in reading comprehension– English by province



4.3.5. Learning achievement by gender in English ORF

As with Kinyarwanda, a higher proportion of female learners meet expectations than their male counterparts. However, the gap reduces when comprehension of the text is assessed through questions. This suggests that learners are able to decode (match sound to the letters) much better than they are able to comprehend. These outcomes are similar to those of LARS 2023 which also showed larger proportion of learners in two highest categories of national benchmarks in English oral reading fluency as compared to English oral reading comprehension.

Figure 24: Proportion of learners meeting expectations in reading words in story – English by gender

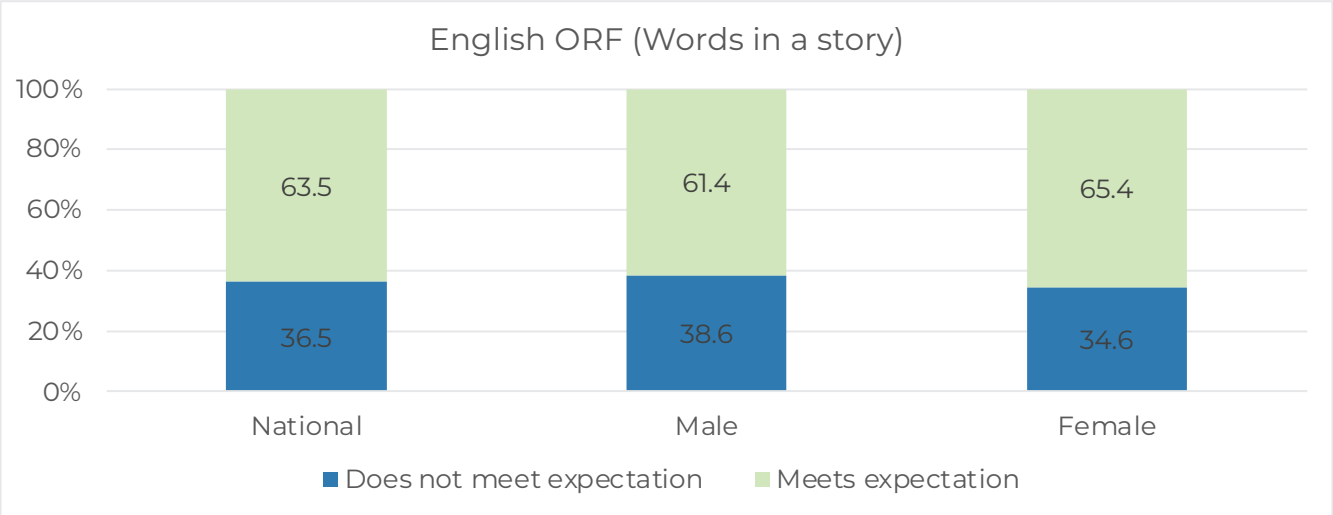
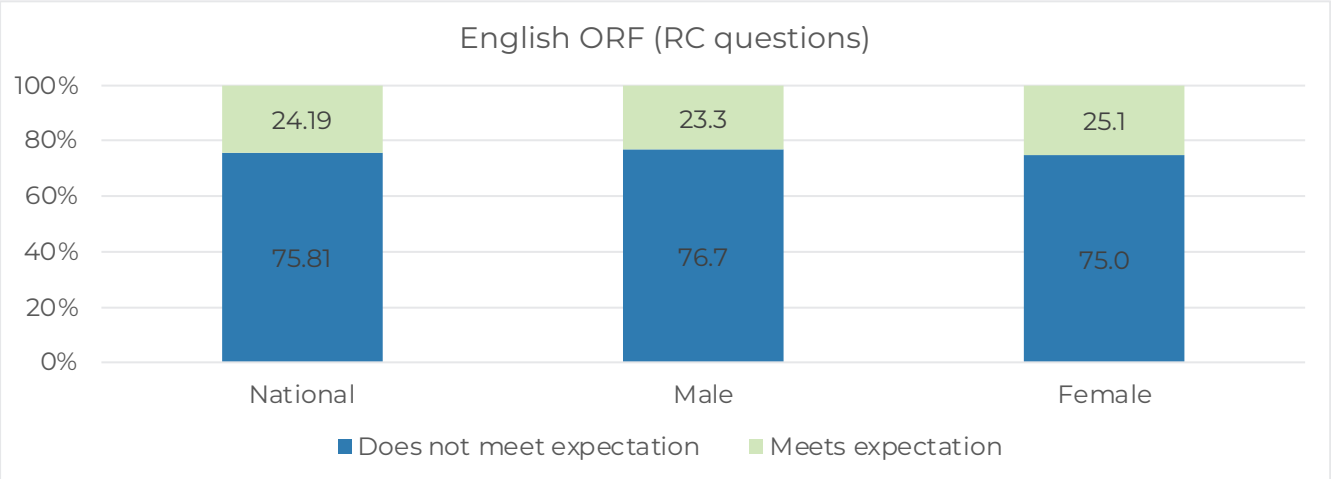


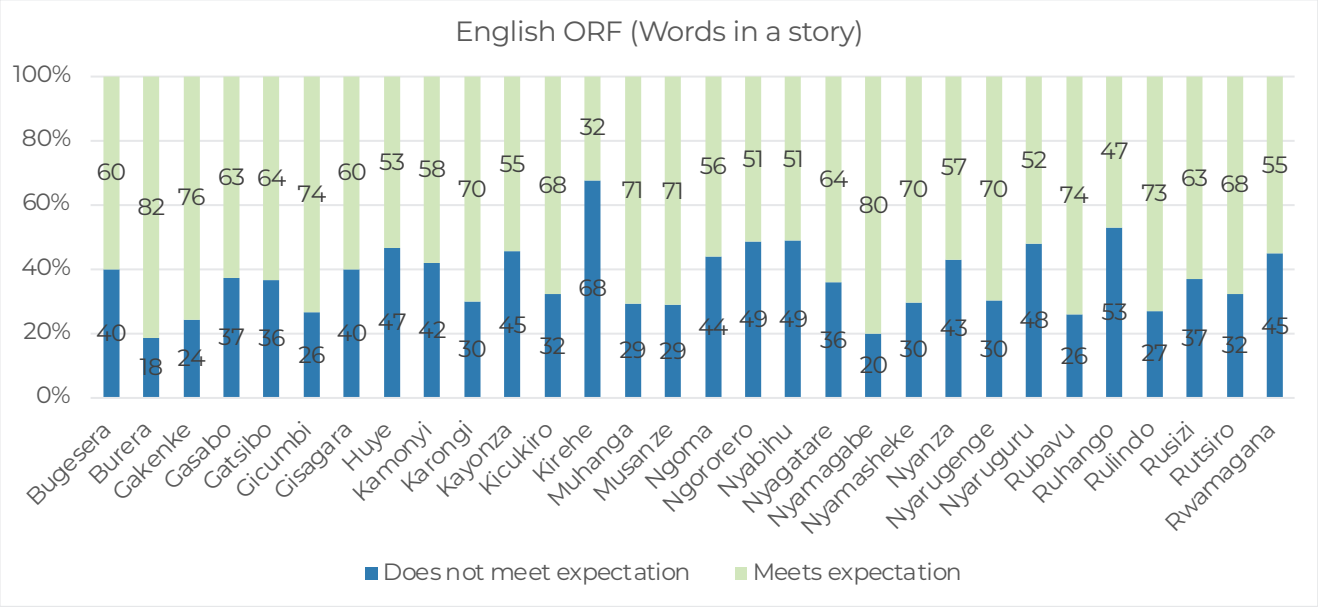
Figure 25: Proportion of learners meeting expectations in reading comprehension – English by gender



4.3.6. Learning achievement by district in English ORF

When reading words as part of a connected text, the proportion of learners meeting expectations is above the national level in 14 of the 30 districts. Burera (82%), Nyamagabe (80%) and Gakenke (76%) have the highest proportion of learners meeting expectations. The districts with the lowest proportion of learners meeting expectations are Kirehe (32%), Ruhango (47%) and Nyabihu (51%).

Figure 26: Proportion of learners meeting expectations in reading words in story – English by district



The proportion of learners meeting expectations is above the national level in only 14 of the 30 districts when responding to comprehension questions on the text that learners read. Musanze (48%), Rutsiro (47%) and Burera (36%) have the highest proportion of learners meeting expectations. The districts with the lowest proportion of learners meeting expectations are Ngororero (9%), Kayonza (10%) and Rwamagana (11%).

4.3.3. Learning achievement in English reading comprehension

Similar to the ORF results, the performance in English reading comprehension is presented using two different analysis – one based on average performance, indicated by the mean scale score and the second one based on performance standards developed through a national benchmarking exercise mentioned in chapter 2.

4.3.3.1. Test reliability estimates: English

Test reliability is a measure of consistency of an assessment, while Cronbach Alpha specially measures internal consistency, that is how well the items in a test measure the same underlying construct. For a test with 30 items, a Cronbach's Alpha above 0.80 is generally considered psychometrically reliable. The table below indicates that English tests had good reliability.

Table 13: Reliability estimated for English tests (Cronbach Alpha)

Test	Number of items	Cronbach's Alpha
English P3	30	0.89
English P6	30	0.81
English S3	30	0.86

English mean scale scores

The overall mean scale scores in English across all 3 grades are presented in the table below. Standard Error (SE) reflects the precision of the mean score estimate, and a lower SE means the estimate is more precise. The SEs are very low (1–2), indicating high precision in the results of English in LARS 2025.

Table 14: National English mean scale scores in LARS 2025

Test	N	Mean scale score	Std. Error
English P3	7179	501.8*	2
English P6	7206	536.0	1
English S3	5852	524.5	2

As mentioned above, separate scales were developed for each grade and therefore, the mean scale scores are not directly comparable across grades.

Learner achievement by performance standards

The description for each level is provided below by grade. These standards act as levels of progressions within a grade, therefore, learners at higher levels are expected to have acquired the skills and knowledge described in lower levels. For instance, a learner at the Meets Expectations level in P3 is likely to have acquired the skills described in the Below Partially Meets Expectations and Partially Meets Expectations in P3.

The descriptions were developed based on expert judgement and the analysis of data from LARS 2025 and informed by the Global Proficiency Frameworks and the PIRLS reading scale.

Table 15: English P3 performance standards

Scale score	Level	Descriptions
Statements below are to be read as learners at this level are likely to		
575 and above	Exceeds Expectations	show some grammatical skills such as the appropriate use of prepositions and to interpret information in short, simple texts.
504 - 574	Meets Expectations	show knowledge of spelling of common words and retrieve information based on simple clues in short, simple texts.
423 - 503	Partially Meets Expectations	identify the meaning of some common words and retrieve directly stated information in short, simple texts.
422 and below	Below Partially Meets Expectations	retrieve directly stated information when texts are read out to them.

Table 16: English P6 performance standards

Scale score	Level	Descriptions
Statements below are to be read as learners at this level are likely to		
608 and above	Exceeds Expectations	reflect and evaluate short, simple texts and begin to interpret information from longer, more complex texts.
521 - 607	Meets Expectations	show grammatical skills such as identifying the appropriate tense to use in context and identify main ideas and interpret information from short texts of different types including non-continuous ones.
469 - 520	Partially Meets Expectations	identify the antonyms and plurals of some common words and retrieve directly stated information from short, simple texts of different types including non-continuous ones.
468 and below	Below Partially Meets Expectations	identify the meaning of some common words and retrieve directly stated information in short, simple texts.

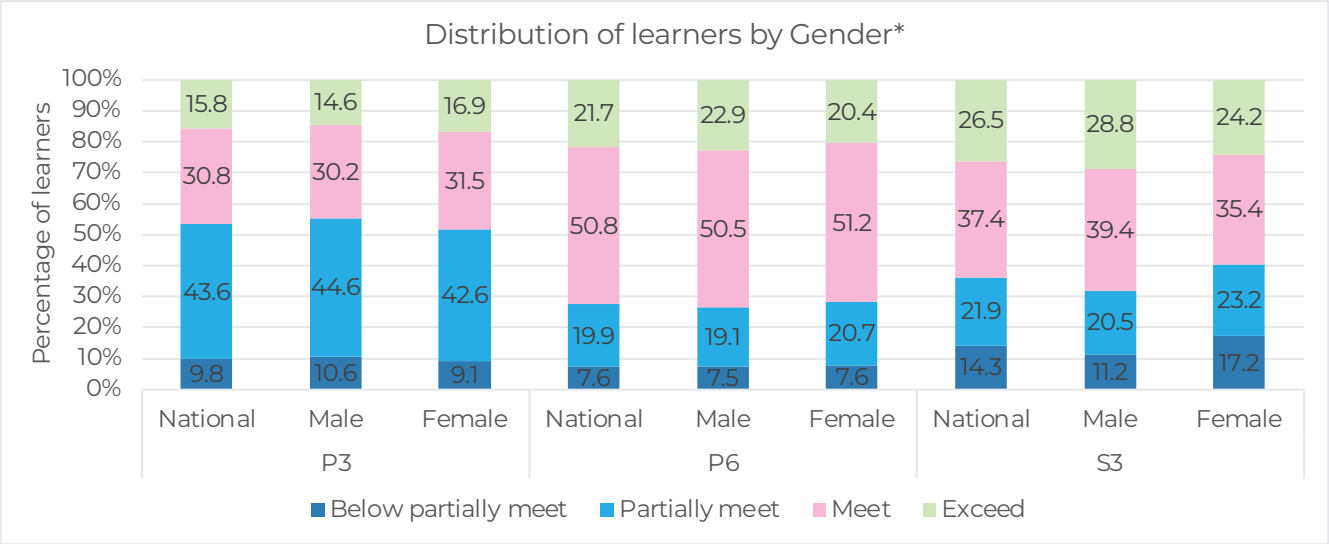
Table 17: English S3 performance standards

Scale score	Level	Descriptions
Statements below are to be read as learners at this level are likely to		
612 and above	Exceeds Expectations	evaluate the intended effect of the author's language and style and textual and visual elements.
512 - 611	Meets Expectations	draw inferences in various kinds of texts, such as understanding the motivation behind characters' behaviour and identifying the traits of characters in narrative texts.
460 - 511	Partially Meets Expectations	identify appropriate superlatives for adjectives, appropriate forms of verbs, show basic knowledge of idioms and phrases and link information across sentences and interpret information in different types of texts.
459 and below	Below Partially Meets Expectations	retrieve directly stated information from different types of texts with some level of complexity.

The difference between male and female learners was only significant in S3 with male learners scoring higher.

The figure below shows the distribution of learners across the 4 performance levels for English by grade and gender.

Figure 27: Learners' performance in English by gender



*The number of learners who indicated their gender as 'Other' were too few (2 in P3 & S3 and 3 in P6) in number and have not been included in any of the graphs indicating performance by gender.

Figure 27 shows the percentage of learners at the 4 levels described above overall as well as by gender. In P3, nearly half the learners (about 47%) met grade level expectations. They showed knowledge of spelling of common words and can read short, simple texts to retrieve information based on simple clues. They demonstrated these skills in addition to the ones that learners who were below grade level expectations show.
More than 70% of learners met grade level expectations in P6. They showed grammatical skills such as identifying the appropriate tense to use in context and identifying main ideas and interpreting information from short texts of different types including non-continuous ones.

Similarly, in S3, approximately 64% of learners met curricular expectations for the grade level. They were able to draw inferences in various kinds of texts, such as understanding the motivation behind characters' behaviour and identifying the traits of characters in narrative texts.

There was very slight difference observed in gender-wise performance in P3 and in P6. However, in S3 male learners' performance was substantially better with more than 68% of male learners meeting or exceeding expectations and about 60% of female learners
doing so.

4.4. Learning achievement by province

The mean scale scores and number of participants in English across 3 grades are presented in the table below.

Table 18: English mean scale scores by province

Province	P3		P6		S3	
	N	Mean	N	Mean	N	Mean
East Province	1704	496.3	1751	532.4 (min)	1500	526.8
Kigali City	730	513.6 (max)	694	549.3	512	538.9 (max)
North Province	1199	498.7	1172	534.7	1047	514.8 (min)
South Province	1978	494.8 (min)	1962	533.7	1517	525.7
West Province	1568	513.2	1627	538.5 (max)	1276	523.1
National Mean	7179	501.8	7206	536	5852	524.5

The mean scale score of learners in most of the provinces across grades is similar (statistically insignificant difference) to the nationally mean. However, learners in West Province and Kigali City performed significantly better than the national mean in P3 and P6, respectively. In S3, the average performance of learners in North Province was significantly lower than the national mean.

When learner achievement was analysed by distribution across proficiency standards, few provinces showed substantial differences in the proportion of learners who meet expectations compared to national levels. Kigali City had a higher proportion of learners meeting expectations in all 3 grades (see figures below), West province in P3 and P6 and East province only in S3.

North Province had a substantially lower proportion of learners who meet expectations in S3, around 56%, than at the national level (nearly 64%).

Figure 28: Province-wise proficiency distribution for P3 English

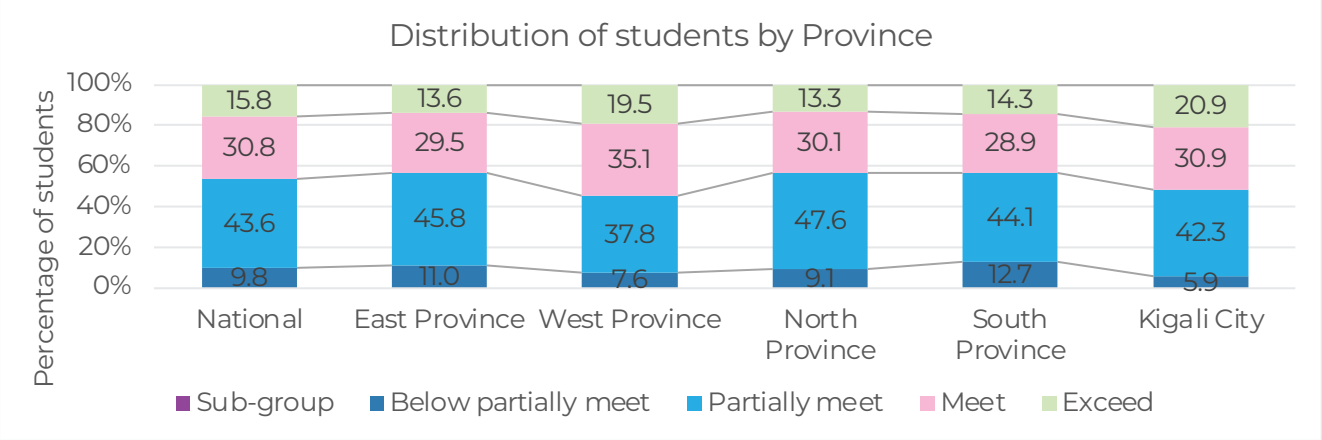


Figure 29: Province-wise proficiency distribution for P6 English

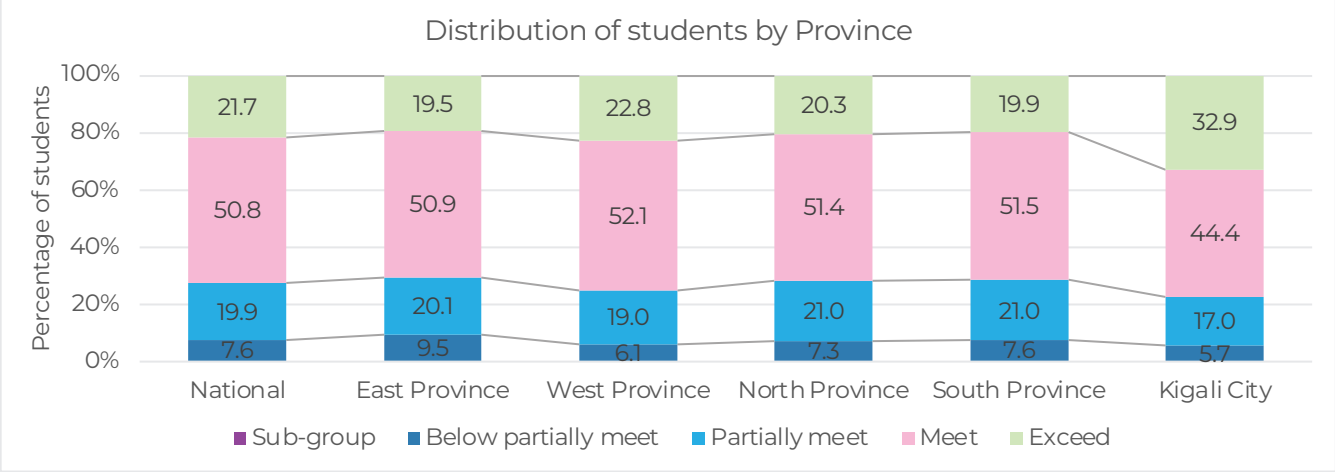
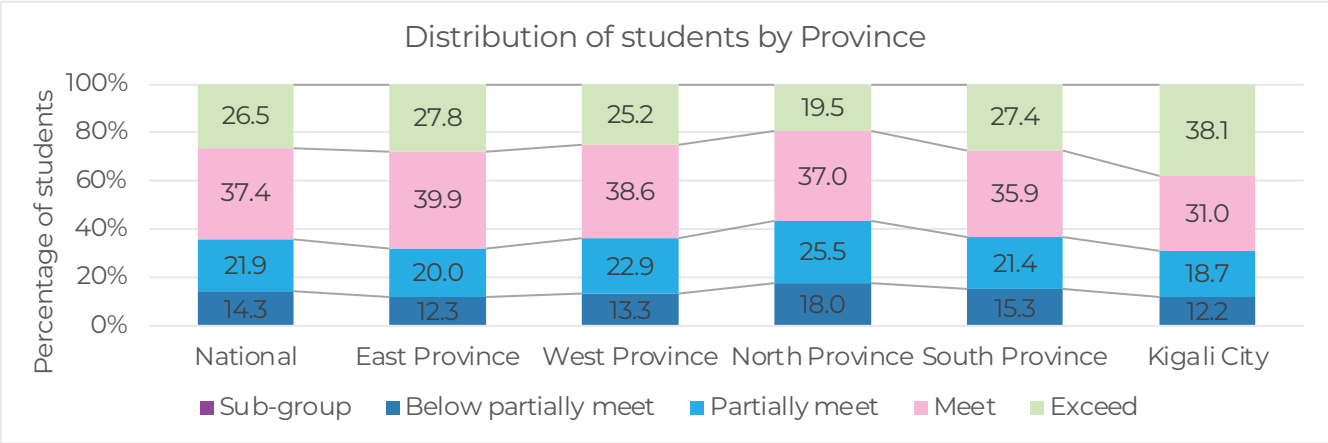


Figure 30: Province-wise proficiency distribution for S3 English



The comparison between the proportion of male learners to female learners who met expectations across provinces, seems to suggest an equity issue in the higher grades. In P3, in most provinces (except East Province), substantially more female learners met expectations compared to their male counterparts. The situation was drastically reversed by S3 with more male learners meeting expectations than females in every province. The gap was highest in East province – 74% (male learners) to 61% and lowest in South Province, 65% to 61%.

4.5. Learning achievement by district

Top performing districts by mean scale score

In P3, Rutsiro was the top performing district with a mean scale score of 535.3. In P6 and S3, Nyarugenge was the top performing district with a mean scale score of 553.7 and 549.5, respectively.

Lowest performing districts by mean scale score

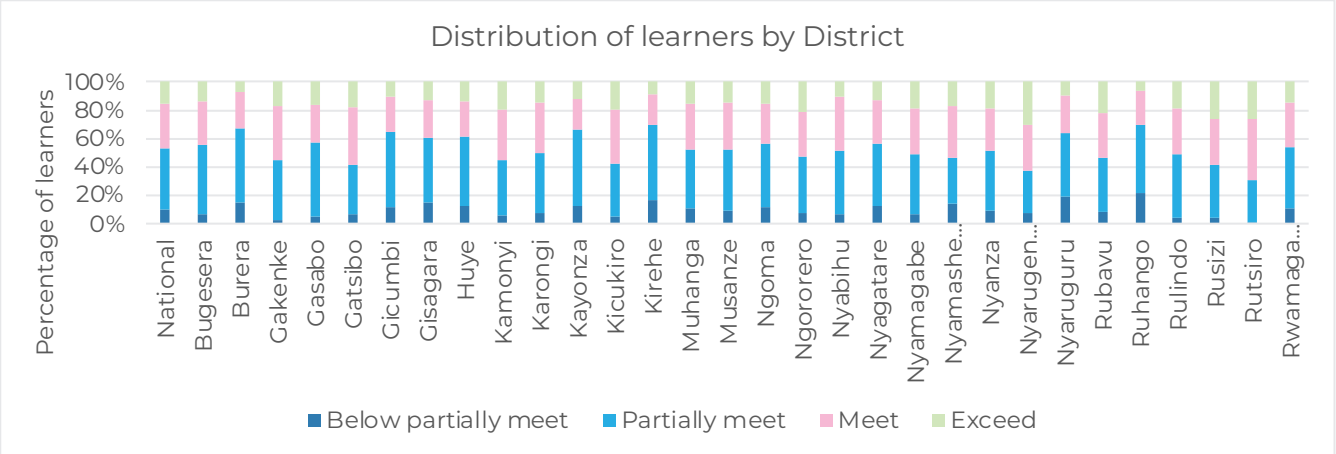
In P3, Ruhango was the lowest performing district with a mean scale score of 468.5. In P6, Kirehe was the lowest performing district with a mean scale score of 515 and in S3, Gakenke was the lowest performing district with a mean scale score of 499.5. In P3, Nyaruguru showed the highest variation in performance measurement with a Standard Error (SE) of 18.7. In P6, Nyarugenge showed the highest variation in performance with an SE of 9.9. In S3, Ruhango showed the highest variation in performance with an SE of 26.4.

Proficiency distribution

Across all 3 grades, Kicukiro district had a high proportion of learners meeting expectations and Burera had a consistently low percentage of learners meeting expectations compared to the national percentages.

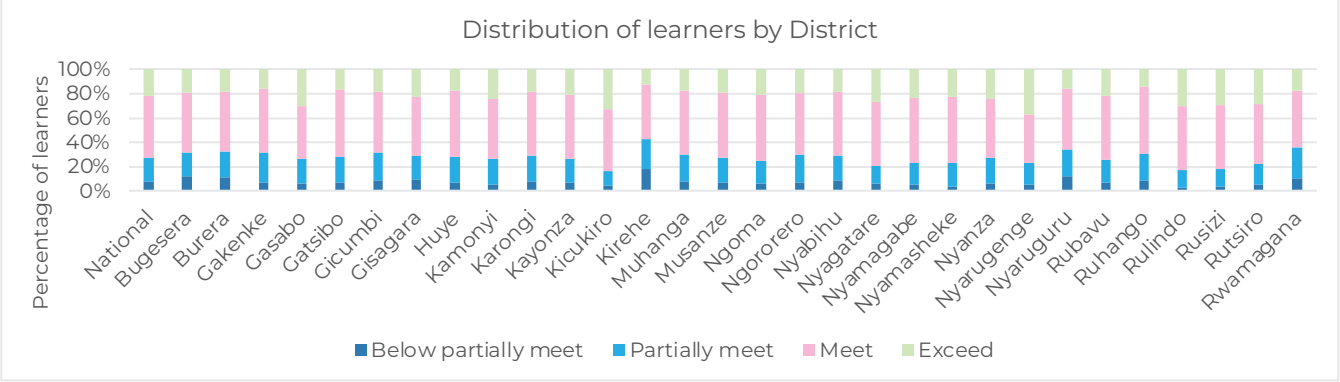
Figure 31 indicates that in P3, in Kirehe and Ruhango only about 35% of learners met expectations, while in both Nyarugenge and Rutsiro more than 60% of learners met expectations.

Figure 31: District-wise proficiency distribution for P3 English



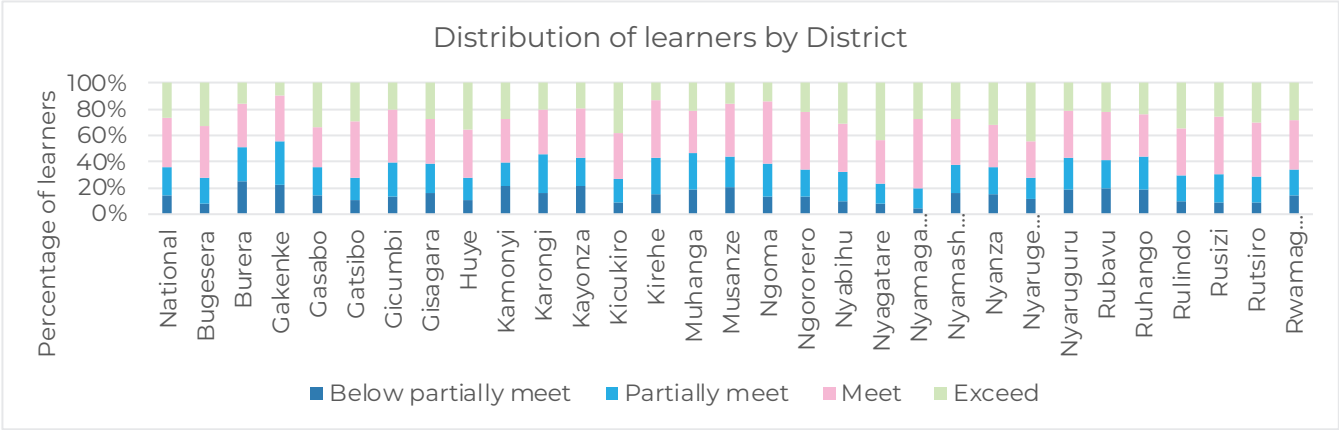
In P6, more than 80% of learners met expectation in Kicukiro and Rulindo, while less than 60% of learners met expectations only in Kirehe.

Figure 32: District-wise proficiency distribution for P6 English



Similarly, In S3, more than 80% of learners met expectation only in Nyamagabe and less than 50% of learners met expectations in Garenke and Burera

Figure 33: District-wise proficiency distribution for S3 English



When gender differences were considered, it was clear that in most districts a gap is created between female learners' performance in male learners' performance by P6 and persisted through S3. In P3 in 23 out of 30 districts, the proportion of female learners meeting expectations was higher. However, by P6 the percentage of male learners meeting expectations was higher in 24 districts. Similarly, in S3, the proportion of male learners was higher in 26 districts.

In Nyanza district, the proportion of female learners who meet expectations was higher than males across all grades.

4.6. Learning achievement by location

Urban learners outperformed their rural counterparts across the grades in English when mean scale scores are compared. Comparison of the performance of male and female learners is provided below for each grade.

presents the performance of male and female learners in P3 English, indicating that performance is statistically similar across rural and urban areas.

Table 19: English mean scale scores of P3 learners by location

Location	N (Male)	Mean (male)	SE (male)	N (Female)	Mean (female)	SE (female)	Achievement gap
RURAL	3027	498	2.3	3095	503	2	Not significant
URBAN	516	506	5.9	539	517	6	Not significant
National mean	3543	499	2	3634	505	2.3	Not significant

presents the performance of male and female learners in P6 English, indicating that performance is statistically similar across rural and urban areas.

Table 20: English mean scale scores for P6 learners by location

Location	N (Male)	Mean (male)	SE (male)	N	Mean (female)	SE (female)	Achievement gap
RURAL	3040	535	1.4	3133	532	1	Not significant
URBAN	506	552	4.6	524	549	4	Not significant
National mean*	3546	538	1	3657	534	1.3	Not significant

* Three students excluded due to missing gender information.

In S3, urban learners' average performance was better than rural learners'. The Error! Reference source not found. indicates that the performance of male and female learners was statistically not significant in urban areas. However, rural male learners performed significantly better than their female peers.

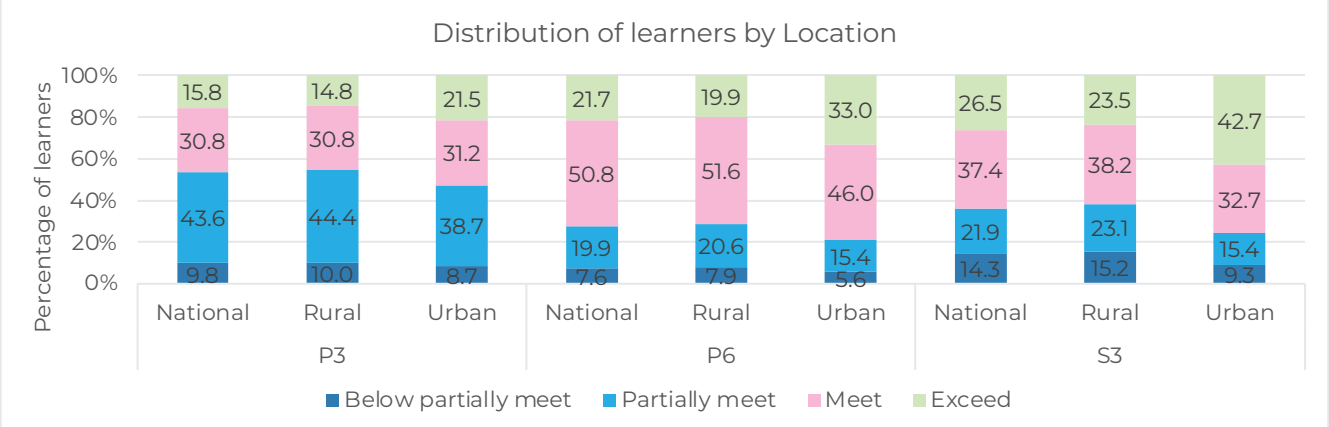
Table 21: English S3 comparative mean scale scores by location

Location	N Male)	Mean (Male)	SE (Male)	N	Mean (Female)	SE (female)	Achievement gap
RURAL	2438	525.8	2.1	2526	515	3	Males have higher mean
URBAN	445	550.0	5.7	442	543	7	Not significant
National*	2883	530	2	2968	519.6	2.4	Males have higher mean

*One student excluded due to missing gender information.

The figure below shows, the percentage of learners who met expectations is higher in urban areas across grades. The difference was more evident when learners who exceed expectations are compared. In S3, for instance, the percentage of learners who exceed expectations in urban areas was 42.7 compared to 23.5 in rural areas.

Figure 34: Location-wise proficiency distribution for English



The proportion of female learners who exceed expectations was higher than their male peers in P3 in both rural and urban areas. However, in P6 and S3, the proportion was greater for male learners than female learners in all areas.

4.7. Learning achievement by school status

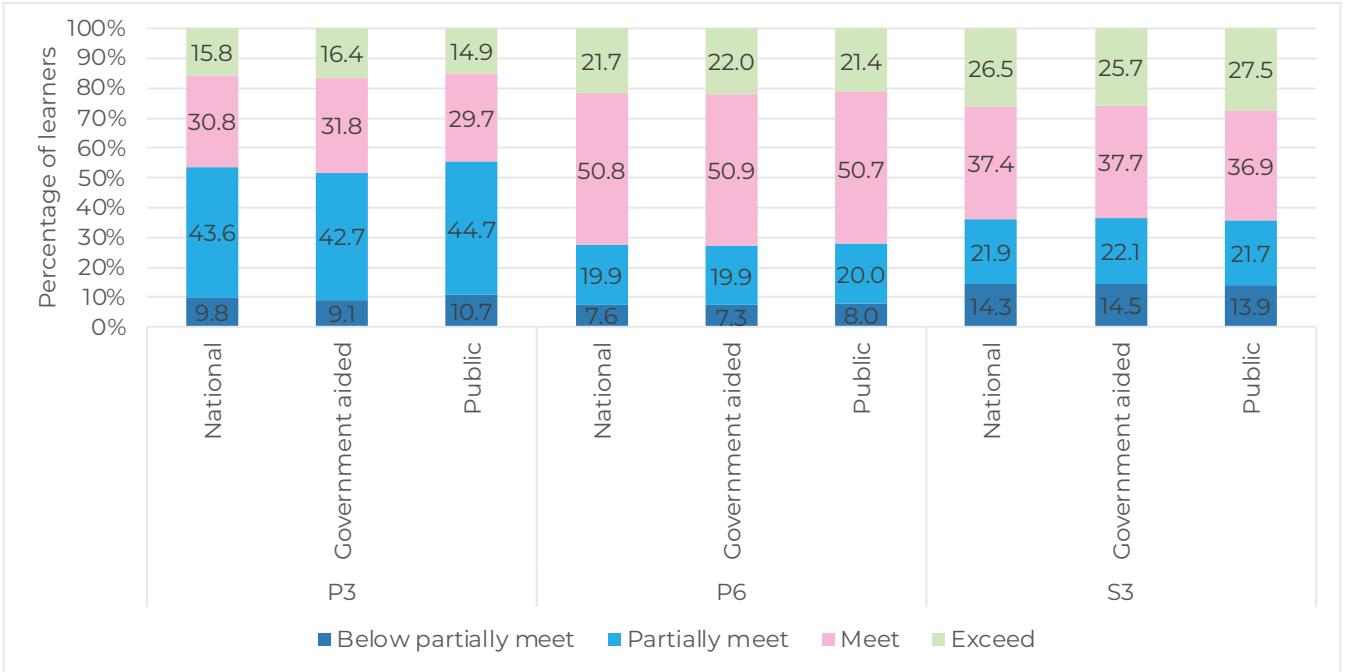
Learners in government-aided schools performed better in English at the P3 level. However, there was a convergence in performance trends as learners progress to S3, with public schools performing slightly better. This is presented in the table below.

Table 22: English mean scale scores by type of school status

Status	P3		P6		S3	
	N	**Mean scale score**	**N**	**Mean scale score**	**N**	**Mean scale score**
Government Aided	4218	504.0	4269	536.4	3429	523.9
Public	2961	498.9	2937	535.4	2423	525.4
National	7179	501.8	7206	536	5852	524.5

The proportion of learners meeting expectations was similar across both types of schools with the biggest difference seen in P3 with more than 48% of government aided school learners meeting expectations compared to almost 45% in public schools.

Figure 35: Proficiency distribution of learners by school status for English



4.8. English performance by key learning area

This section presents learner performance in key learning areas of English. The tables are organised in descending order of scale scores meaning the first item listed in each key learning area corresponds to the highest scale score.

Performance of learners in P3 English test

The item with highest scale score (most difficult) that had only about 25% of learners answering it correctly was a grammar item that required learners to identify the appropriate preposition to apply in context.

The items with the lowest scale score (easiest) that about 77% of learners answered correctly was a vocabulary item that required learners to identify an image for a simple grade-level word. The table below shows the items with the highest and lowest scale scores in P3.

Table 23: English performance in terms of what P3 learners know and can do

What they know and can do	Scale score	Facility (% of students who answered it correctly)	Learning area
Identify the correct use of preposition in context	573.5	25.8	Grammar
Retrieve information from a short, very simple text	562.6	29	Reading comprehension
Retrieve information from a short, very simple text	554.3	31.6	Reading comprehension
Identify the grade-level word for an image	422.2	77.4	Vocabulary
Identify the grade-level word for an image	431.8	74.7	Vocabulary
Identify the correct spelling of a common grade-level word	439.2	72.4	Spelling

Performance of learners in P6 English test

The item with the highest scale score (most difficult) that had about 23-27% of learners answering correctly was a reading comprehension item that required learners to interpret information from a text.

The item with lowest scale score (easiest) that about 90% of learners answered correctly was a reading comprehension item that required learners to retrieve information from a short text. The table below shows the items with the highest and lowest scale scores in P6.

Table 24: English performance in terms of what P6 learners know and can do

What they know and can do	Scale score	Facility (% of students who answered it correctly)	Learning area
Interpret information given in a narrative text	606.5	23.8	Reading comprehension
Interpret information by linking across sentences in a short text	595.3	27.5	Reading comprehension
Interpret the meaning of a word based on context in a short text	594.2	27.9	Reading comprehension
Retrieve prominent information from a short text	410.4	90.5	Reading comprehension
Retrieve information from a short text	417.6	89.3	Reading comprehension
Identify the meaning of a grade-level word based on its definition	418.9	90.6	Vocabulary

Performance of learners in S3 English test

The item with highest scale score (most difficult) that had only about 15% of learners answering it correctly was a reading comprehension item that required learners to retrieve information from a short narrative text. The item with lowest scale score (easiest) that about 95% of learners answered correctly was a reading comprehension item that required learners to retrieve information from a short text. The table below shows the items with the highest and lowest scale scores in S3.

Table 25: English performance in terms of what S3 learners know and can do

What they know and can do	Scale score	Facility (% correct response)	Learning area
Retrieve information from a short narrative text in the presence of strongly competing information	627.7	15	Reading comprehension
Interpret information from an informative text	610.8	18.9	Reading comprehension
Retrieve information based on a synonymous match from an informative text	564.0	33.4	Reading comprehension
Retrieve prominent information from a short narrative text	352.0	95.1	Reading comprehension
Retrieve information from an informative text	438.5	79.8	Reading comprehension
Identify information based on prior knowledge	444.4	78.1	Reading comprehension

4.9. Summary

In LARS 2025, assessment was conducted for 2 languages: English and Kinyarwanda. The assessment in English had two different components: an oral reading fluency test for P3, and a pen-and-paper test assessing reading comprehension and associated areas for P3, P6 and S3, whereas Kinyarwanda included only one component – an oral reading fluency test for P3. The assessments were designed keeping in mind the requirements of aligning them with the national curriculum, SDG 4.1.1 goals and UIS reporting criterion.

When reading words in isolation learners read 34 words per minute on average. In task 2, when reading a connected passage average words read per minute was 45. However, in Kinyarwanda, learners seemed to comprehend what they read as the percentage of correct responses for the associated comprehension questions was above 43 for all the questions.
The proportion of learners meeting expectation of reading 35 words per minute in isolation and as part of a text were 49% and 71%, respectively. The number of questions expected to be answered based on the text was set at 6 out of 7 questions and nearly 44% of learners met the benchmark. A higher percentage of female learners met expectations compared to male learners.

The average words read per minute in a connected text in English was about 42 with a very high degree of variability (Standard Deviation (SD) = 56.7). Further, there was indication that the learners were not comprehending what they read well as the percentage of correct responses for the associated comprehension questions was below 25 for all the questions.
The benchmark for words read per minute was set at 30 and the number of questions to be answered based on the text was set at 5 out of 8 questions and 63% and 24% of learners met the expectations, respectively. As with Kinyarwanda, female learners outperformed male learners.

In P3, nearly half the learners (almost 47%) met grade level expectations. They showed knowledge of spelling of common words and can read short, simple texts to retrieve information based on simple clues. They demonstrated these skills in addition to the ones that learners who were below grade level expectations show. In P6, 70% of learners met grade-level expectations showing grammatical skills such as identifying the appropriate tense to use in context, identifying main ideas and interpreting information from short texts of different types including non-continuous ones. Nearly 64% of learners met curricular expectations for the grade level in S3. They were able to draw inferences in various kinds of texts, such as understanding the motivation behind characters' behaviour and identifying the traits of characters in narrative texts.

The general trend in English suggested an equity gap as grade levels increase. Female learners who outperformed male learners in P3 fell behind by P6 and the gap increased by S3. Multiple pieces of evidence support this finding as indicated below.

Differences in mean scale scores were not significant in the primary grades but by S3 male learners mean scale score was significantly higher than their female counterparts. Further, in S3 68% of male learners met or exceeded expectations and less than 60% of female learners did so.

In P3, in most provinces (except East Province) substantially more female learners were able to meet expectations compared to their male counterparts. The situation was reversed by S3 with more male learners meeting expectations than females in every province.

Similarly, when performance was considered by district, in P3, female learners had a higher proportion of learners meeting expectations than males in 23 out of 30 districts. However, in P6 and S3, the number reduced to 6 and 4 districts, respectively.

In rural areas, male learners showed significantly higher average performance than their female peers in S3. In both rural and urban areas, the proportion of female learners who exceed expectations was higher than their male peers in P3 and the situation was reversed in P6 and S3.

Urban learners showed stronger performance across all 3 grades compared to rural learners. Score variability was higher in urban areas, possibly reflecting differences in access to resources, teaching quality, or learner backgrounds.

Rutsiro, in P3, and Nyarugenge, in P6 and S3, had the highest mean scale scores. Districts such as Kicukiro (P3 and P6) and Rulindo (P6 and S3) had mean scale scores significantly higher than the national mean.

Districts such as Kirehe and Ruhango may require targeted interventions to improve learner outcomes. Most districts had a mean scale score that was similar to the national mean across grades suggesting equity in access to quality education.

In general, reading comprehension items were more difficult than items assessing language elements (grammar, spelling and vocabulary). Items that required learners to interpret information were generally more difficult.

Items that assessed learner's ability to retrieve prominent information, especially from short texts and where there was no competing information, were easiest in grades P6 and S3. In P3, learners found items that required knowledge of basic words, their spelling or meaning, easiest.

5. Findings of LARS 2025: mathematics

This chapter begins by presenting the mathematics assessment specifications and reliability estimates, followed by findings on learner performance based on IRT-derived mean scale scores and grade-level performance standards. Subsequent sections examine performance variations across province, location, district, and school status, and results disaggregated by gender to highlight patterns in mathematical achievement among groups.

5.1. Mathematics assessment design

The mathematics assessment in LARS 2025 aimed to generate high-quality and reliable data on learners' achievement in mathematics at the P3, P6, and S3 levels. The content areas assessed in the mathematics assessment included - number and operations, algebra, measurement, geometry, statistics and probability. The table below shows weightage of content areas in LARS 2023 and LARS 2025.

Table 26: Content areas of mathematics with number of items in LARS 2023 and LARS 2025

Content area	P3		P6		S3	
	2023	2025	2023	2025	2023	2025
Number and operations	16	20	18	16	14	15
Algebra	0	2	4	3	6	4
Measurement	7	4	4	6	5	4
Geometry	4	3	1	1	1	4
Statistics and probability	3	1	3	4	4	2
Total	30	30	30	30	30	30

In addition, items were designed to assess 3 cognitive levels: knowing, understanding, and applying. These cognitive levels were not explicitly defined in the Rwandan mathematics curriculum. Instead, they were adapted from international large-scale assessments to provide a structured framework for reporting on learners' cognitive skills. This adaptation enables clearer benchmarking, comparison across grades, and interpretation of learner performance in LARS assessments.

In 2023, a higher proportion of items were targeted to assess knowing, particularly at P3 and P6 levels, while in 2025, the focus shifted toward understanding and applying, aligning more closely with Competency-based Curriculum (CBC). The table below illustrates this shift.

Table 27: Cognitive skills assessed in LARS 2023 and LARS 2025 for mathematics

Cognitive skill	Knowing		Understanding		Applying	
	2023	2025	2023	2025	2023	2025
P3	7	6	15	21	8	4
P6	6	4	15	19	9	7
S3	6	2	16	21	8	7
Total	19	12	46	61	25	18

LARS 2025 assessed mathematics achievement among learners at 3 grade levels P3, P6, and S3. Each test had a duration of 75 minutes and consisted of one booklet per grade, with 30 items in each booklet. The test specifications for LARS 2025 are provided in the table below.

Table 28: Test specification for mathematics pen-and-paper test

Features	Details
Grades	P3, P6 and S3
Test time	75 minutes
Number of test forms	1 booklet per grade
Number of items (per booklet)	30
Item formats	Multiple Choice Questions (MCQs)
Horizontal linking	No
Vertical Linking	No
Historical Linking	Yes

5.2. Mathematics assessment findings

This section presents the performance of learners in mathematics in LARS 2025. Performance is described using mean scale scores and proficiency distribution on overall basis as well as disaggregated by key stratification variables.

5.2.1. Test reliability estimates: mathematics

Test reliability is a measure of consistency of an assessment, while Cronbach Alpha specially measures internal consistency, that is how well the items in a test measure the same underlying construct. For a test with 30 items, a Cronbach's Alpha above 0.80 is generally considered psychometrically reliable. The table below indicates that Mathematics tests had good reliability.

Table 29: Reliability estimated for mathematics tests (Cronbach Alpha)

Test	Number of items	Cronbach Alpha
Mathematics P3	30	0.85
Mathematics P6	30	0.90
Mathematics S3	30	0.85

5.2.2. Learning achievement in mathematics

The overall mean scale scores in mathematics across all 3 grades are presented in the table below. SE reflects the precision of the mean score estimate, and a lower SE means the estimate is more precise. The SEs are very low (1–2), indicating high precision in the results of mathematics in LARS 2025.

Table 30: National mathematics mean scale scores in LARS 2025

Test		Mean Scale Score*	Std. Error
Mathematics P3	7238	494.4	1.6
Mathematics P6	7209	499.5	1.5
Mathematics S3	5799	575.2	1.9

*Separate scales were developed for each grade owing to the test design and therefore, mean scale scores are not directly comparable across grades.

5.2.3. Learning achievement in mathematics across performance standards

The performance standards established through the national benchmarking exercise are presented below. As described in Chapter 2, for each grade, learners were categorised into 4 levels of achievement based on the data and expert judgement. Following the practices adopted in LARS 2023, the 4 levels were: Below Partially Meets Expectations, Partially Meets Expectations, Meets Expectations, and Exceeds Expectations. As the labels suggest, the latter 2 categories are learners who are at the level or exceed the level expected of learners in a particular grade.

The description for each level is provided below by grade. These standards act as levels of progressions within a grade, therefore, learners at higher levels are expected to have acquired the skills and knowledge described in lower levels. For instance, a learner at the Meets Expectations level in P3 is likely to have acquired the skills described in the Below Partially Meets Expectations and Partially Meets Expectations in P3.

The descriptions were developed based on expert judgement and the analysis of data from LARS 2025 and informed by the Global Proficiency Frameworks.

Table 31: Mathematics P3 performance standards

Scale score	Level	Descriptions
Statements below are to be read as learners at this level are likely to		
598 and above	Exceeds Expectations	represent whole numbers in equivalent ways, solve operations using whole numbers, solve problems involving time, and compose and decompose shapes and figures.
478 - 597	Meets Expectations	identify and count whole numbers, determine their relative magnitude, divide a three-digit number by a two-digit number, add and subtract numbers in context, identify cardinal numbers, convert minutes to hours, read a calendar, use different currency units to create amounts, read a simple bar graph, determine the place value of a digit in a three-digit number, identify one-fourth of a whole, and recognize and describe shapes and figures.
423- 477	Partially Meets Expectations	identify number names below 100, skip count by 10, tell time in hours on an analogue clock, and subtract one three-digit number from another without regrouping.
422 and below	Below Partially Meets Expectations	count objects, add two-digit numbers without regrouping, and multiply a number by 2.

Table 32: Mathematics P6 performance standards

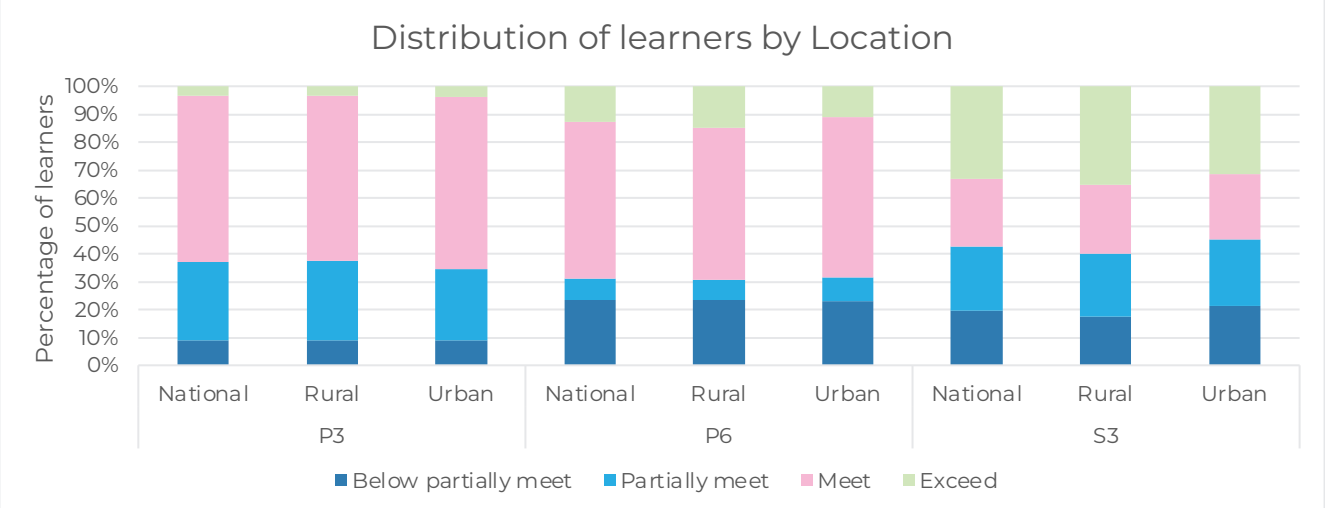
Scale score	Level	Descriptions
Statements below are to be read as learners at this level are likely to		
550 and above	Exceeds Expectations	solve real-world problems involving whole numbers, solve problems involving time, calculate the area of a rectangle, and calculate the mean of a given data set.
497- 549	Meets Expectations	solve operations using whole numbers, identify and represent fractions using symbols, identify relative magnitude, add proper fractions, solve problems involving money, solve problems using perimeter, find the next term in a number pattern, solve simple algebraic equations in one variable, and read and make simple interpretations of a bar graph with a scale of 10.
455 - 496	Partially Meets Expectations	identify whole numbers up to six digits, divide whole numbers without a remainder, recognize simple patterns, round decimals to the nearest tenth, identify the most appropriate unit of measurement, convert weight from kilograms to grams, recognize the names of angles acute, right, and obtuse.
454 and below	Below Partially Meets Expectations	identify the relative magnitude of decimals up to one decimal place, solve problems involving time, and add two decimals up to the tenth place.

Table 33: Mathematics S3 performance standards

Scale score	Level	Descriptions
Statements below are to be read as learners at this level are likely to		
601 and above	Exceeds Expectations	calculate the volume of a rectangular cuboid, solve problems based on sophisticated proportional reasoning, for example speed of car in meter per second, and identify the relationship between variables and interpret a pie chart
563 - 600	Meets Expectations	identify, represent, and order quantities using scientific notation, fluently convert numbers in decimal, fraction and percentage, calculate the percentage of a whole number, use the angle sum property of a triangle in simple contexts, calculate the area of a triangle identify the diameter of a circle, and identify the coordinates of a point on a Cartesian plane
525 - 562	Partially Meets Expectations	identify the relative magnitude of fractions, find the value of an algebraic expression by substituting the values of variables, model and compute with expressions, solve a simple linear equation, factorise an algebraic expression, and find the average of a given data set
524 and below	Below Partially Meets Expectations	represent decimals in equivalent ways (including fractions and percentages), identify their relative magnitude, solve simple operations using decimals, percentages, and proportional reasoning, solve problems involving time and money, and retrieve and interpret data presented in a bar graph

The figure below shows the distribution of learners in 4 levels for P3, P6 and S3.

Figure 36: Proficiency level of learners in mathematics in LARS 2025



It is evident that:

- In P3, nearly 63% of the learners either met or exceeded grade level expectations, while 37% learners were below grade level expectations.
- In P6, nearly 69% of the learners met or exceeded grade level expectations, while 31% learners were below grade level expectations.
- In S3, 57.5% learners met or exceeded grade level expectations, while 42.5% learners were below grade level expectations.

There was no significant difference observed in gender-wise performance in P3, however in P6 and S3 male learners' performance was slightly better.

5.3. Learners' mathematics achievement by province

The number of participants and mean scale scores by province in mathematics across 3 grades are presented in the table below.

Table 34: Mathematics mean scale scores by province

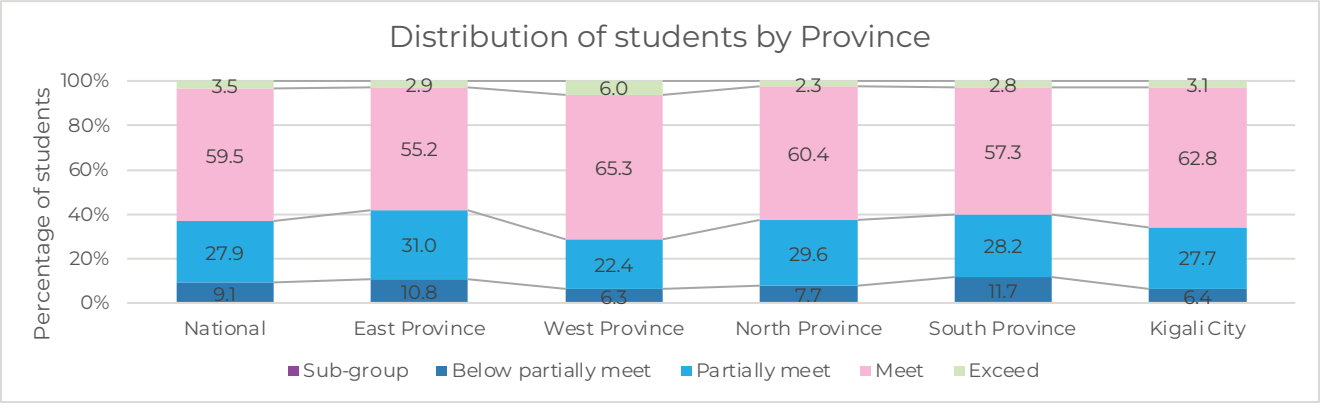
Province	P3		P6		S3	
	N	Mean scale score	N	Mean scale score	N	Mean scale score
East Province	1717	487.8	1748	522.8	1511	578.7
Kigali City	728	497.6	690	503.2	489	569.0
North Province	1238	493.0	1164	514.8	1054	569.0
South Province	1981	489.2	1974	495.9	1486	578.3
West Province	1574	508.2	1633	462.3	1259	574.7

At P3 level, mean scale score for the West Province was higher than the national average, while the East Province showed a much higher mean scale score in P6 and S3 than their respective national mean scale score.

Learners' achievement in performance standards by province

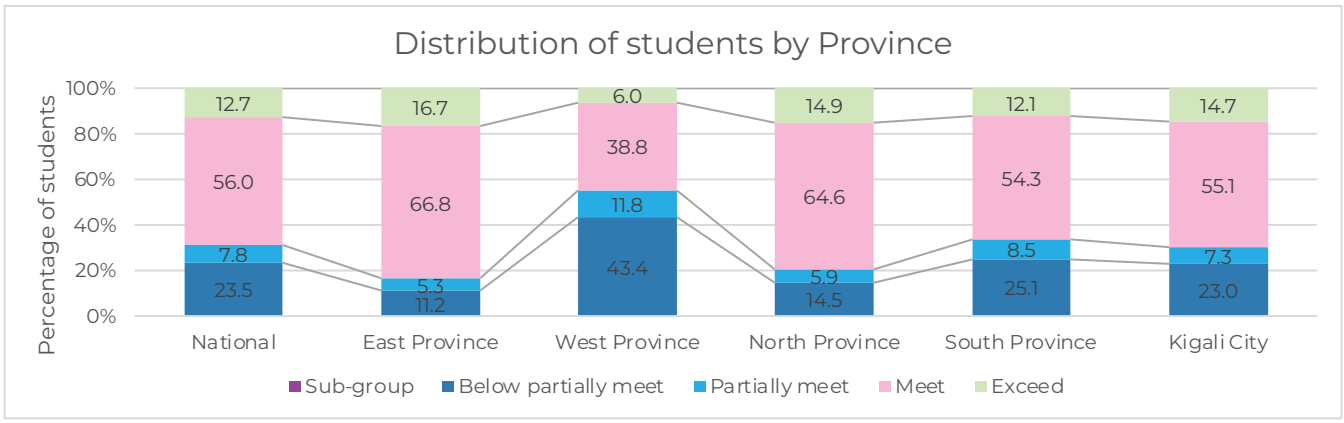
Learners' achievement across 5 provinces in P3 is shown in the figure below. More than 65% of learners in the West Province met the mathematics curriculum standards, with 6% exceeding these benchmarks. In contrast, nearly 42% of learners in the East Province performed below the grade-specific curriculum standards in P3.

Figure 37: Province wise proficiency distribution for P3 mathematics



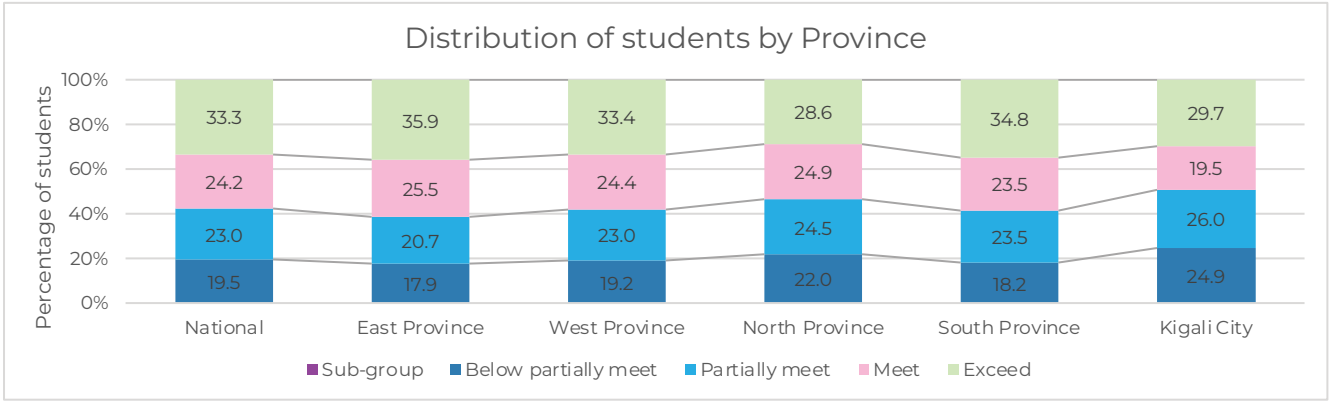
The mean scale score and the percentage of learners who met or exceeded grade-level performance standards in the East and North provinces in P6 mathematics were higher than the national average indicating relatively stronger performance in these regions.

Figure 35: Province wise proficiency distribution for P6 mathematics



In S3, percentage of learners who achieved meets or exceed grade level expectations was least in Kigali city and highest in the East Province.

Figure 38: Province wise proficiency distribution for S3 mathematics



5.4. Learners' mathematics achievements by district

Top performing Districts

In P3, Rutsiro was the top performing district with a mean scale score of 537. In P6, Nyagatare was the top performing district with a mean scale score of 548 and in S3, Nyamagabe was the top performing district with a mean scale score of 604.

Lowest performing districts

In P3, Ruhango was the lowest performing district with a mean scale score of 471. In P6, Nyarugenge was the lowest performing district with a mean scale score of 414 and in S3, Rubavu was the lowest performing district with a mean scale score of 545.

Standard Error observations (variability in scores)

In P3, Nyaruguru showed the highest variation in performance with a Standard Error (SE) of 15.9. In P6 and S3, Musanze showed the highest variation in performance with an SE of 10.7 in both grades.

Detailed information for mean scale score by district is provided in the technical report.

Learners' achievement in performance standards by district

Seventy percent of P3 learners in Rutsiro district met or exceeded grade-level expectations. In Ruhango, this percentage was nearly 49%, and in Kirehe, it was 48%.

Figure 39: District wise proficiency distribution for P3 mathematics

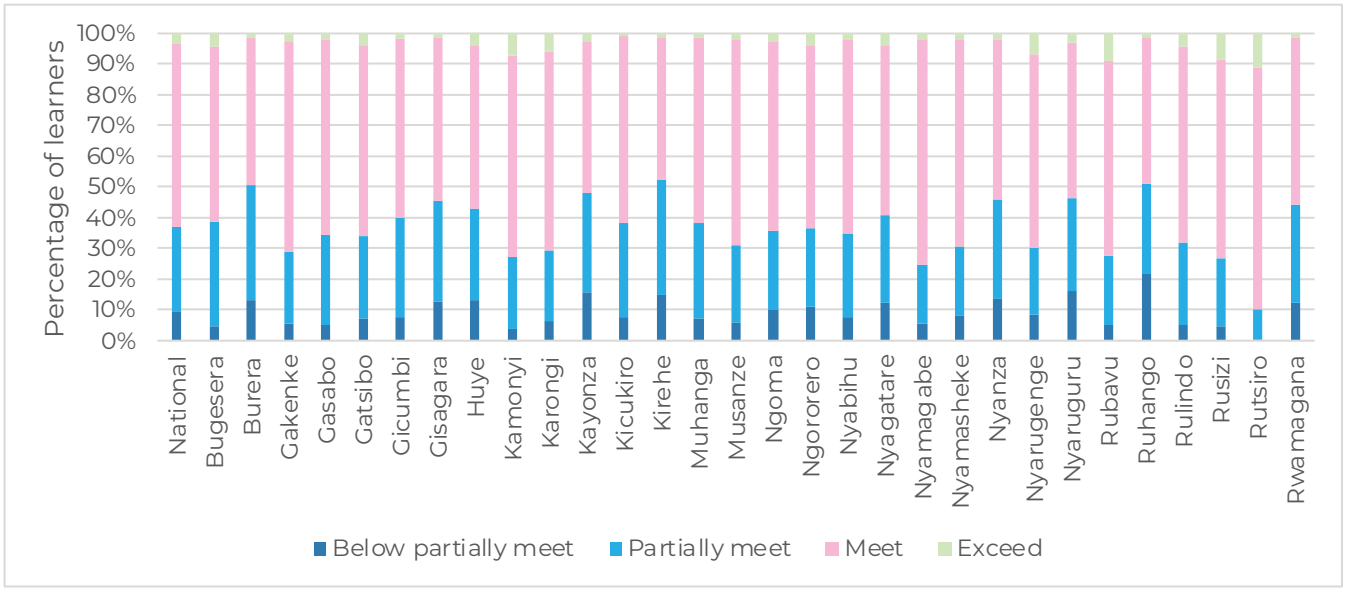
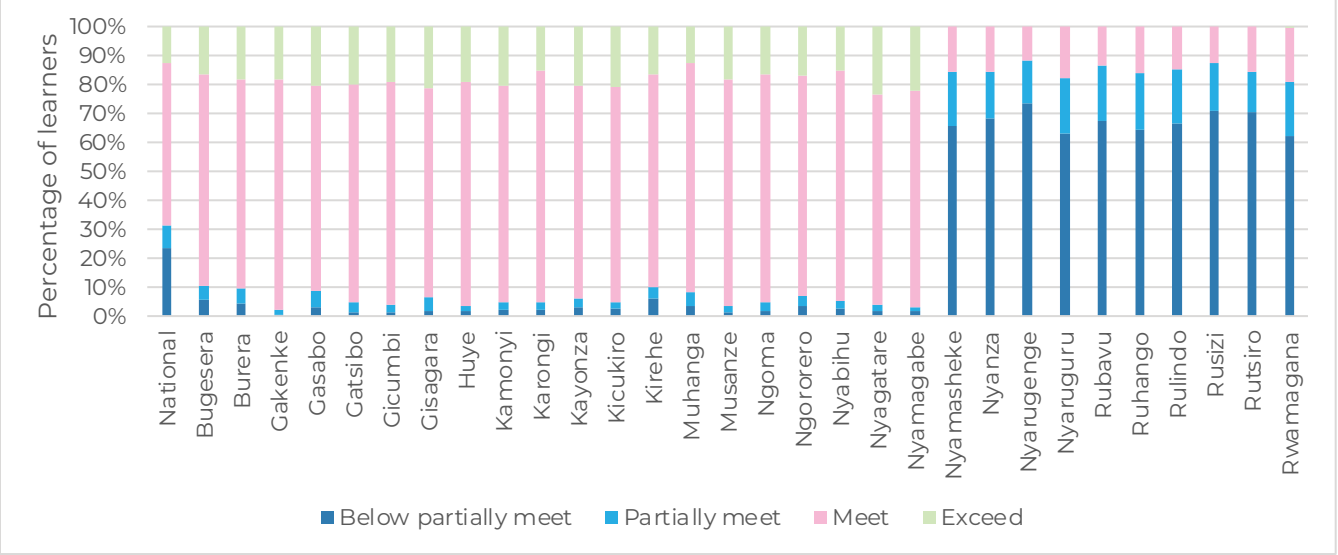


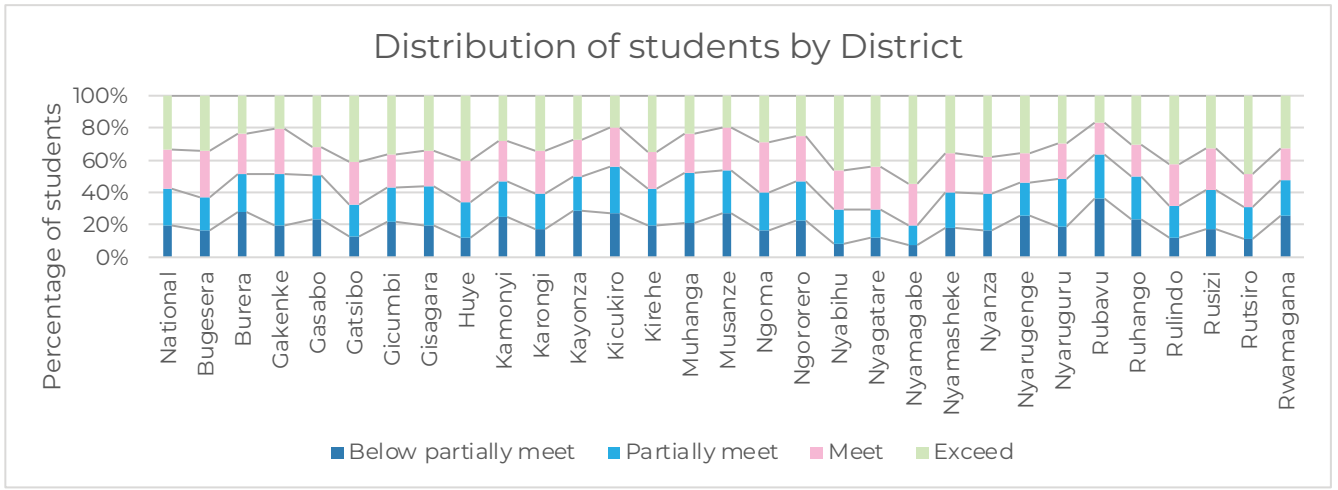
Figure below shows wide variations were observed in P6. More than 90% of learners in 18 districts met or exceeded grade-level expectations, with Nyamagabe topping the list at 97.5%. On the other hand, there was no or very few learners in this category in Rulindo, Nyamashekeke, Nyanza, Rusizi, Rutsiro, Rubavu, Nyarugenge, Ruhango, Nyaruguru, and Rwamagana.

Figure 39: District wise proficiency distribution for P3 mathematics



In S3, the Nyagatare and Nyabihu districts performed much better than the national level, with 60% or more of learners meeting or exceeding grade-level expectations. In Nyamagabe, the percentage was above 80%. In Rubavu, only 36% of learners met or exceeded grade-level expectations.

Figure 41: District wise proficiency distribution for S3 mathematics



Most districts showed similar performance to the national performance suggesting that the quality of education is equitably distributed across the various districts of Rwanda in P3 and S3. In P6, 19 of the districts showed a mean scale score significantly higher than the national average and the rest showed a mean scale score significantly lower than the national average.

While many districts showed better performance than the national average in a single grade, Kamonyi (P3 and P6) and Nyamagabe (P6 and S3) achieved a mean score that was significantly better than the national average in two grades. Ruhango (P3 and P6) and Rubavu (P6 and S3) had mean scale scores significantly lower than the national average.

Detailed performance of all districts is provided in the technical report.

5.5. Learners' mathematics achievements by location

Urban learners scored slightly higher than rural learners in P3 mathematics, with mean scores of 496.3 and 494.1, respectively. Across both urban and rural areas, there was no statistically significant difference in P3 mathematics performance between male and female learners. Nationally, male learners scored 495, while female learners scored 494.3, indicating near parity at this level.

Table 36: Mathematics mean scale scores of P3 learners by location

Location	N	Mean scale score (male)	SE (male)	N	Mean scale score (female)	SE (female)	Achievement gap
RURAL	3049	494.5	2.0	3135	494	2	Not significant
URBAN	519	495.4	4.3	533	497	5	Not significant
National	3568	495	2	3668	494.3	1.7	Not significant

In P6 mathematics, rural learners performed better. Among rural learners, males scored significantly higher than females. In urban areas, males scored slightly higher, but this difference was not statistically significant. Nationally, a statistically significant gender gap favouring males was found in P6.

Table 37: Mathematics mean scale scores of P6 learners by location

Location	N	Mean scale score (male)	SE (male)	N	Mean scale score (female)	SE (female)	Achievement gap
RURAL	3030	504.4	1.8	3146	498	2	Males have higher mean
URBAN	509	496.7	8.2	521	483	5	Not significant
National	3339	503	2	3667	496.0	1.6	Males have higher mean

At the S3 level, urban learners again performed better than rural learners. Standard deviations were consistently higher in urban areas across all levels, indicating greater variability in performance. Among rural learners, males scored significantly higher than females, while in urban areas, the difference in performance of male and female learners was not statistically significant. Nationally, a significant gender gap favouring males was reported in S3.

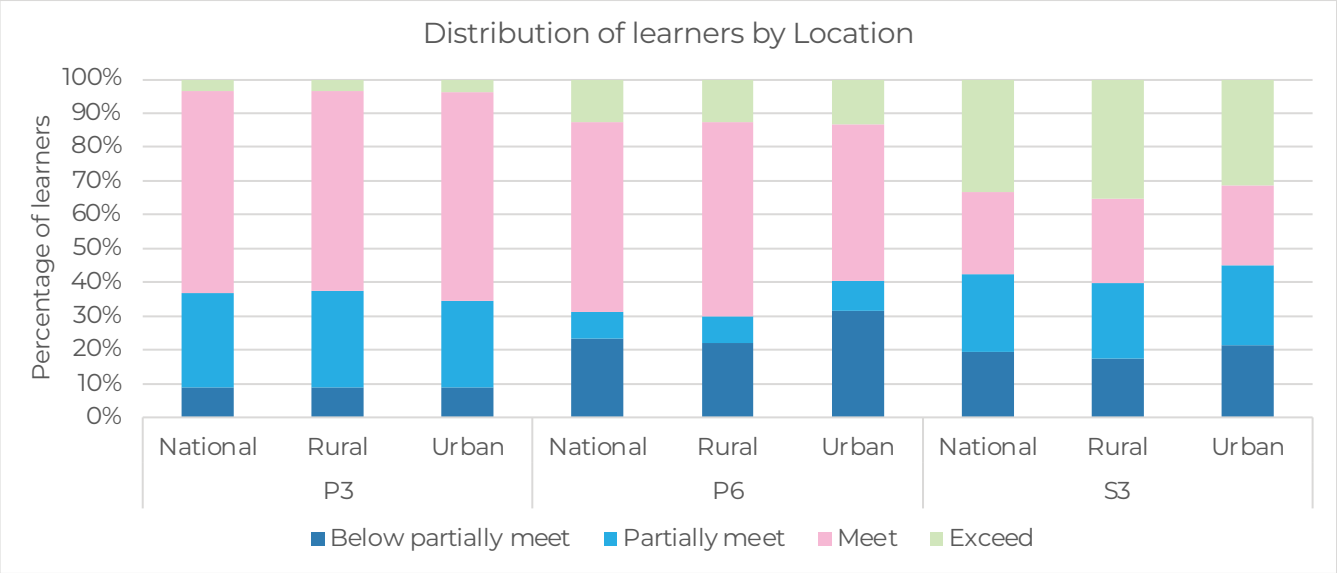
Table 38: Mathematics mean scale scores of S3 learners by location

Location	N	Mean scale score (male)	SE (male)	N	Mean scale score (female)	SE (female)	Achievement gap
RURAL	2429	578.2	2.2	2505	571	2	Males have higher mean
URBAN	433	582.8	6.1	431	574	6	Not significant
National	2862	579	2	2936	571.7	2.3	Males have higher mean

Learners' achievement in performance standards by location

Learners in urban areas had an edge over their rural counterparts in P3. This is evident as 65.6% of urban learners met or exceeded grade-specific performance standards compared to 62.6% of rural learners. However, in P6, rural learners performed better, with more than 70.2% learners who have met or exceeded the standards compared to 59.7% of urban learners. At the S3 level, rural learners (60.1%) performed better than their urban counterparts (54.9%).

Figure 42: Location wise proficiency distribution for mathematics



5.6. Learners' achievement by school status

The learners in government aided schools performed better in mathematics at the P3 level. However, there was a convergence in performance trends as learners progress to S3. The performance gap was narrow at S3. Standard errors were slightly higher in public schools across all levels, indicating more variability in learner performance. Sample sizes (N) were consistently larger in government aided schools due to PPS sampling approach, reflecting broader enrolment or coverage.

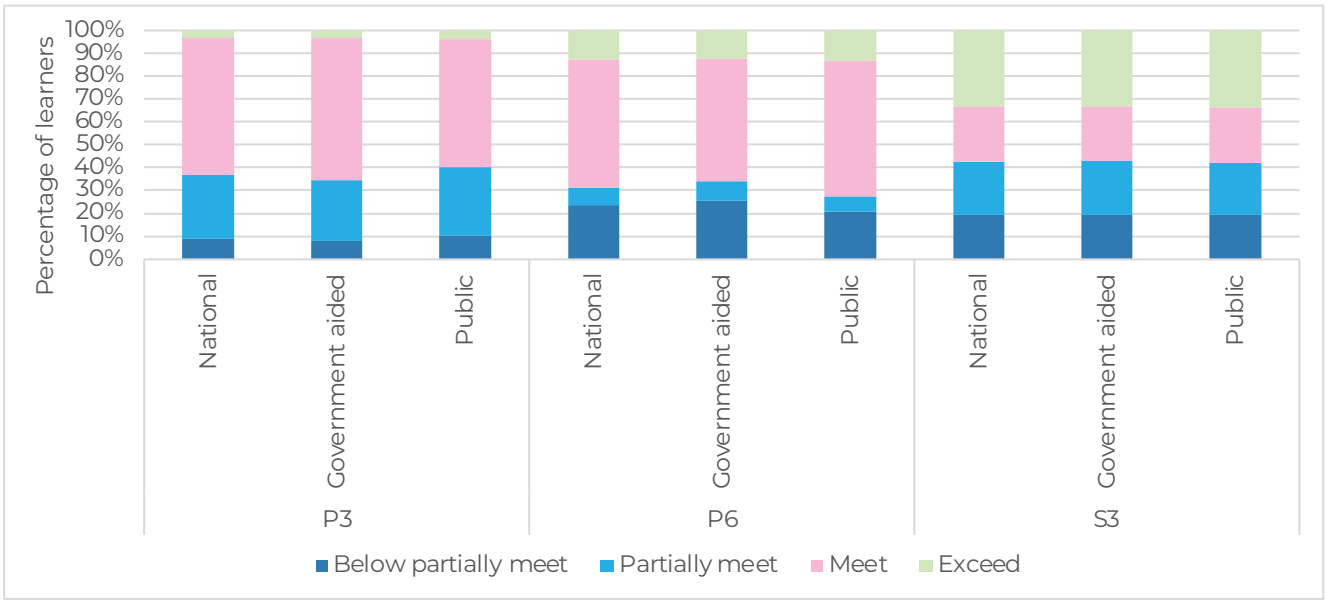
Table 39: Mathematics mean scale score by type of school status

Status	P3		P6		S3	
	N	Mean Scale Score	N	Mean Scale Score	N	Mean Scale Score
Government Aided	4246	497.1	4287	496.2	3389	575.0
Public	2992	490.9	2922	504.0	2410	575.6

Learners' achievement by status

Learners in government-aided schools performed slightly better in P3, with 65.4% meeting or exceeding grade-level expectations compared to 59.9% in public schools. In P6, the trend reversed, with 72.4% of public-school learners meeting or exceeding the standards compared to 66% in government-aided schools. At the S3 level, there was no significant difference between the two.

Figure 43: School status wise proficiency distribution for mathematics



5.7. Mathematics performance by key learning area

Learner performance in mathematics was assessed across key learning areas, which differed through grades. The findings in the following tables are organised in descending order of scale scores meaning the first item listed in each key learning area corresponds to the most difficult item on the scale.

At P3 level

The most challenging mathematics item at the P3 level was a division number-sentence problem. Additionally, the percentage of learners demonstrating proficiency in subtraction remains low. This suggests that many Grade 3 students are still developing foundational understanding in both division and subtraction and therefore require continued instructional support in these areas.

In geometry, while more than half of the learners were able to correctly identify a given two-dimensional shape, only one-third could recall and describe the properties of these shapes. This indicates a gap between basic recognition and deeper conceptual understanding.
Within the measurement strand, the concept of time is still emerging for many students. Only one-third of the learners were able to recall the number of minutes in an hour, highlighting the need for further reinforcement and practical learning opportunities related to time measurement.

Table 40: Mathematics P3 performance in terms of what learners know and can do

What they know and can do	Strand	Scale score	Facility (% correct response)
Completes a number sentence by dividing a 3-digit number by a 2-digit number	Number	598.0	15.8
Subtracts a 2-digit number from a 2-digit number without regrouping in context	Number	569.5	23.1
Subtracts a 2-digit number from a 2-digit number without regrouping in context	Number	556.7	27.2
Identifies positions of objects placed in an order	Geometry	567.5	23.8
Recalls the number of sides in a triangle	Geometry	545.6	30.9
Identifies the name of a given 2-dimensional shape	Geometry	480.3	56.4*
Recalls the minutes in an hour	Measurement	541.8	32.2
Reads a calendar to determine the day of the week for a given	Measurement	536.8	34.0
Adds given denominations to find a specified total amount	Measurement	534.1	35.1

More than 50% students answered correctly

At P6 level

In P6 mathematics, learners showed fluency in performing basic mathematical operations; however, applying these operations within word problems remains a significant challenge. Only 23% of learners were able to successfully solve word problems that required the use of multiple operations, indicating difficulty in transferring procedural skills to real-life contexts.

Performance across geometry and measurement was uneven. Learners demonstrated stronger understanding of geometrical concepts than measurement concepts. For example, while 40% of students could calculate area and perimeter, only 30% were able to determine elapsed time, showing that time-related skills are still developing.

Nearly half of the learners demonstrated an understanding of pre-algebraic concepts such as identifying and extending patterns, suggesting early readiness for more advanced algebraic thinking. However, data-handling skills remain emergent at this grade level. Although about half of the students correctly interpreted a bar graph, only 20% were able to calculate the mean of a provided data set, highlighting the need for additional support in statistical reasoning.

Table 41: Mathematics P6 performance in terms of what learners know and can do

What they know and can do	Strand	Scale score	Facility (% correct response)
Uses multi-operation to solve a mathematical problem in context	Number	581.8	23.4
Adds a 2-digit number to a 3-digit number involving money in context	Number	523.7	41.1
Arranges proper fractions in order from largest to smallest	Number	517.7	43. 1
Calculates end time of an activity when start time and elapsed time is given	Measurement	554.4	31.2
Calculates the area of a given rectangle when one of its side lengths is given in decimal	Geometry	549.5	32.7
Calculates the side length of a square when its perimeter is given	Geometry	517.8	42.9
Finds next term of a number pattern by multiplying the previous number by 2	Algebra	500.7	48.8
Calculates the value of a variable given in an equation	Algebra	498.7	49.5
Finds the next term in a sequence that skip counts by 500	Algebra	485.8	53.8
Calculates mean of the given data set	Statistic	588. 5	21.8
Compares data represented through a bar graph having scale of 10	Statistic	506.9	46.7
Reads a bar graph having scale of 10	Statistic	497.1	50.0

50% or more than 50% students answered correctly

At S3 level

At this stage, students have become fluent in performing mathematical operations involving whole numbers, fractions, and decimals. Learners also demonstrate proficiency in grade-appropriate skills such as working with scientific notation and identifying the coordinates of a point on the Cartesian plane.

Skills in geometry, measurement, and data handling show clear improvement compared to performance at the P3 and P6 levels. Students are now engaging with more complex proportional-reasoning tasks. For example, 40% of the learners were able to correctly solve time-and-distance problems, indicating emerging competency with multi-step reasoning and the application of ratios.

Overall, the progression reflects a shift from foundational procedural fluency toward more advanced conceptual understanding and problem-solving abilities.

Table 42: Mathematics S3 performance in terms of what learners know and can do

What they know and can do	Strand	Scale score	Facility (% correct response)
Finds two numbers when their sum and difference is given	Number	562.1	54.5
Represents number expressed in scientific notation as large number in context	Number	542.1	62.1
Arranges fractions in order from smallest to largest	Number	528.7	66.9
Finds the coordinates of a point located on a cartesian plane	Geometry	537.2	63.9
Identifies diameter marked in a circle	Geometry	529.9	66.6
Calculates the measure of an angle in a triangle when 2 of its angles are known	Geometry	527.5	67.4
Calculates the speed of a car in m/s	Measurement	599.8	39.8
Calculates the area of a triangle in context	Measurement	574.0	49.8
Calculates the volume of a tank when its capacity is known	Measurement	599.8	39.8
Identifies the correct relationship between variables	Algebra	593.5	42.2
Factorises algebraic expressions by taking out the common factor	Algebra	523.2	68.9
Finds the value of a variable by solving the equation	Algebra	517.3	70.9
Interprets a pie chart to solve problems involving proportional data	Statistics	572.2	50.5
Finds the average of the given data set	Statistics	565.0	53.3

50% or more than 50% students answered correctly

5.8. Summary

In LARS 2025, the mathematics pen-and-paper assessments were administered for Grades P3, P6, and S3. The assessments were developed in accordance with the national curriculum, the SDG 4.1.1 measurement requirements, and the UIS reporting criteria. Across all three grades, a total of 30 curriculum-aligned questions were included, ensuring consistency with the Rwanda national curriculum.

Mathematics assessments for all three levels demonstrated high reliability. In P3, nearly 63% of learners met or exceeded grade-level expectations. In P6, approximately 69% achieved this benchmark, and in S3, more than 57.5% met or exceeded mathematics grade-level expectations.

There was no significant difference between the performance of male and female learners in P3. However, gender disparities became pronounced at higher grade levels, where a larger proportion of male learners than female learners, met or exceeded grade-level expectations. In S3, male learners generally scored higher.
At the P3 level, the West Province recorded a higher mean scale score than the national average. In contrast, the East Province performed higher that the national average in both P6 and S3.

Mathematics performance of P3 learners varied across provinces. The West Province showed strong outcomes, with over 65% meeting and 6% exceeding curriculum standards. Meanwhile, nearly 42% of learners in the East Province performed below grade-level expectations. In P6, East and North provinces performed above the national mean. In the East Province, 68% of learners met or exceeded expectations, compared with 64% in the North Province. At the S3 level, mathematics performance was relatively consistent (variation of 4%) across all five provinces, indicating uniform achievement and stable educational outcomes nationwide.

Urban learners performed better in P3, with more than 65% meeting or exceeding national benchmarks. However, rural learners outperformed urban learners in P6, where over 70% met or exceeded grade-level expectations. Score variability was higher in rural areas, possibly due to differences in resource access, teaching quality, or learner backgrounds. At the S3 level, no significant performance differences were observed between urban (58.5) and rural learners (57.3).

District-level analysis revealed that Rutsiro demonstrated outstanding performance in P3, with 70% of learners meeting or exceeding expectations. Conversely, in Kirehe, Burera, and Ruhango, fewer than 30% of learners achieved grade-level expectations. In P6, districts such as Huye, Kamonyi, Gakenke, and Nyagatare reported more than 80% of learners meeting or exceeding expectations. In contrast, in Rulindo, Nyamashekeke, Nyanza, Rusizi, Rutsiro, Rubavu, and Nyarugenge, fewer than 1% of learners met grade-level expectations. Musanze showed high variability in performance, suggesting inconsistent achievement within the district.

Government-aided schools demonstrated stronger performance at the foundational P3 level, whereas public schools showed improved outcomes in P6. By S3, no significant performance differences were observed between the two school types. Across grades, learners show steady progression from basic procedural skills to more advanced mathematical understanding, although conceptual gaps persist. P3 learners struggled most with division and subtraction. Half of the learners could identify geometric shapes, but only one fifth could recall their properties. Time measurement appeared as an emerging skill. P6 learners were fluent in basic arithmetic operations but had difficulty applying them in multi-step word problems; only 23% solved such problems correctly. Geometry was better understood than measurement by P6 learners, but data-handling skills remained weak. S3 students showed fluency with whole numbers, fractions, and decimals, along with competence in scientific notation and coordinate geometry. They demonstrated improved geometry, measurement, and data-handling skills and began engaging with complex proportional-reasoning tasks, with 40% successfully solving time-and-distance problems. Overall, the learning trends reflect a shift from foundational procedural fluency in the lower grades to emerging conceptual understanding and multi-step problem-solving abilities in the upper grades.

6. Findings of LARS 2025: science

This chapter begins with an overview of the assessment specifications and reliability estimates, followed by an analysis of learner performance using mean scale scores and proficiency levels. Further sections examine variations in performance across provinces, locations, districts, and school status. Results are also disaggregated by gender to highlight patterns and differences in understanding of scientific concepts among groups.

6.1. Science assessment design

The LARS 2025 S3 science assessment evaluated learners' progression from knowledge acquisition to practical skill application, aligning with the Rwandan S3 science curriculum objectives. The assessment framework in LARS 2025 S3 science assessment reflects a consistent focus on collecting information about learner performance in 3 key domains -physics, chemistry and biology

Each of the domains - physics, chemistry and biology - includes content from many topic areas with several competencies that are to be developed under each topic.

The table below shows the number of test items included in LARS 2025 S3 science assessment across the 3 content domains.

Table 43: Content areas of science with number of items in LARS 2023 and LARS 2025

	Biology	Chemistry	Physics	Total
Items in field trial	14	6	12	32
New items	10		7	17
Amended 2023 items	4	6	5	15
Items selected following field trial	10	4	5	19
LARS 2023 'anchor' items selected	2	5	4	11
FINAL LARS 2025 TEST	12	09	09	30

The final S3 test for 2025 balances items across the domains of biology, chemistry and physics. It incorporates 11 'anchor' items from LARS 2023, enabling the linking of outcomes between the 2023 and 2025 LARS administrations.

The S3 science assessment items in LARS 2025 aimed to assess 3 cognitive levels - knowing, applying, and reasoning. These cognitive levels are not explicitly defined in the Rwandan S3 science curriculum, instead, they have been adapted from international large-scale assessments to structure reporting on learners' cognitive skills. The classification draws on definitions from the Trends in International Mathematics and Science Study (TIMSS) 2023 Science Framework to incorporate perspectives from global large-scale assessments. This adaptation allows for clearer benchmarking, comparison across grades, and interpretation of learner performance in LARS assessments.

In 2023, a larger proportion of items focused on assessing students' knowledge and their ability to describe scientific content. In 2025, the emphasis shifted toward applying, analysing, and evaluating science concepts in real world contexts, aligning more closely with the competency-based curriculum (CBC).

The table below provides the distribution of items by cognitive levels in the science assessment.

Table 44: Science cognitive skills distribution in LARS 2023 and LARS 2025

Cognitive skills	Knowing		Applying		Reasoning	
	2023	2025	2023	2025	2023	2025
Total	17	14	05	07	07	09

The LARS 2025 science assessment covered one grade (S3). The assessment time was 75 minutes, and it consisted of one booklet with 30 items. The table below provided the general features of the S3 science assessment in LARS 2025.

Table 45: Test specification for science pen-and-paper test

Features	Details	
Grades	S3	
Test time	75 minutes	
Number of test forms	1 booklet per grade	
Balance of content (Total coverage)	**Content area**	**S3**
	physics	09
	Chemistry	09
	Biology	12
Number of items (per booklet)	30	
Item formats	Multiple Choice Questions (MCQs)	
Horizontal linking	No	
Vertical Linking	No	
Historical Linking	Yes	

6.2. Science assessment findings

6.2.1. Test reliability estimates: science

Test reliability is a measure of consistency of an assessment, while Cronbach Alpha specially measures internal consistency, that is how well the items in a test measure the same underlying construct. For a test with 30 items, a Cronbach's Alpha above 0.80 is generally considered psychometrically reliable. The table below indicates that Science tests had good reliability.

Table 46: Reliability estimated for science test (Cronbach Alpha)

Test	Number of items	Cronbach Alpha
Science S3	30	0.81

6.2.2. Overall learning achievement in S3 science

The overall mean scale scores in science across all 3 grades are presented in the table below. SE reflects the precision of the mean score estimate, and a lower SE means the estimate is more precise. The SEs are very low (1–2), indicating high precision in the results of science in LARS 2025.

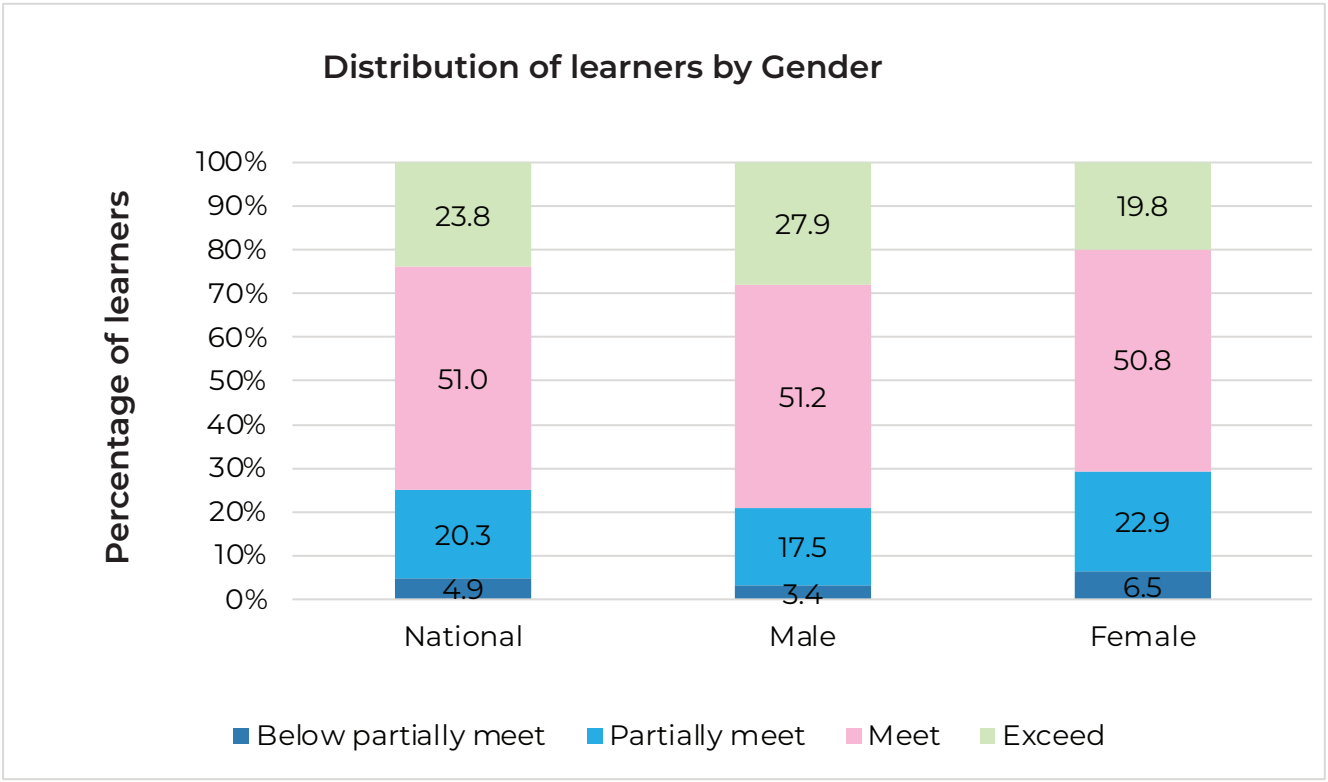
Table 47: National science mean scale score in LARS 2025

Test	N	Mean scale score	Std. Error
Science S3	5840	532.4	1.5

Percentile distribution of learners by proficiency level in science

The percentile distribution graph shown below illustrates how mean scale scores were spread across a range in relation to their position within the entire dataset. Overall, the distribution shows that most learners fall around the percentile range, corresponding to the Meets Expectations category (51%), while only a very small proportion of learners fall into the lowest percentile band aligned with Below Partially Meets Expectations (4.9%). This indicates that most students are performing at or above the expected percentile range. Nearly one fifth of learners are in the lower mid percentile range (Partially Meets Expectations, 20.3%) shows that a large group is performing just below the expected level and may be able to move up quickly with the right interventions. The number in the upper percentile range (Exceeds Expectations, 23.8%) highlights the need to provide additional challenges for students already

Figure 44: National percentile distribution for science



6.2.3. Learners' achievement in science across performance standards

The bookmark method was employed to establish performance standards and arrive on the national benchmarks in science. This method integrates both statistical data and expert judgment to determine cut scores — thresholds that delineate different levels of learner proficiency. As outlined in Chapter 2, learners in each grade were classified into 4 achievement levels using data and expert judgment. Consistent with the approach used in LARS 2023, these levels were named Below Partially Meets Expectations, Partially Meets Expectations, Meets Expectation, and Exceeds Expectation. The last 2 categories represent learners who meet or surpass the expected grade-level standards.

Detailed descriptions for each level are provided below. These levels provide valuable insights into learner abilities that illustrate progression from one level to the next. Each level reflects specific skills and knowledge that learners are likely to demonstrate. Learners placed in higher levels are assumed to have mastered most of the competencies described in that level, along with those in the preceding levels.

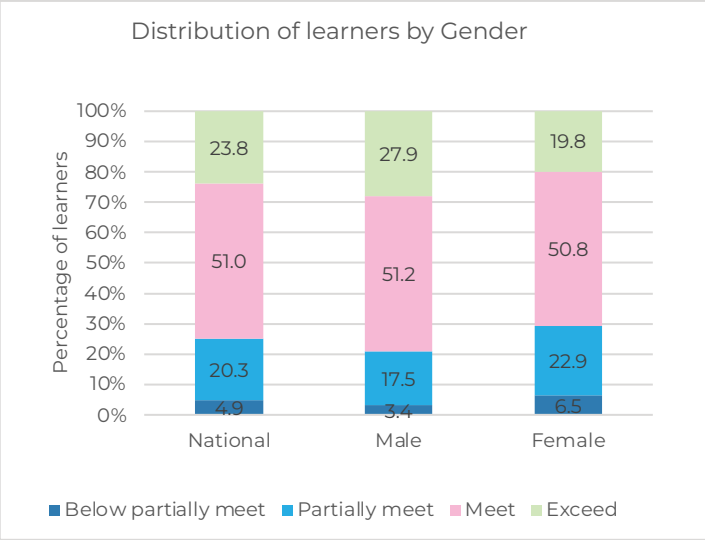
The descriptions have been developed based on the expert judgement and data from LARS 2025 and have been informed by the Rwandan S3 science curriculum.

Table 48: Science S3 performance standards

Scale Scores	Level	Descriptions
Statements below are to be read as learners at this level are likely to		
Above 563	Exceeds Expectations	evaluate and justify differences in similar objects based on the natural phenomena (for example – temperature difference in oceans) evaluate the changes in one attribute based on changes in another attribute in physical quantities
From 501 to 562	Meets Expectations	identify units of measure of physical quantities evaluate the properties of elements and compounds based on attributes balance chemical equations identify and interpret the relationship between familiar parts of a human body and describe the conversion of a compound (water) from one form to another in the cycle as it exists in nature
From 464 to 500	Partially Meets Expectations	identify and recall facts and definitions associated with science relate basic scientific concepts with daily life situations undertake simple calculations to solve problems on work power and energy describe properties of familiar objects based on their physical and chemical characteristics interpret and evaluate simple phenomena and processes
Below 464	Below Partially Meets Expectations	recall and identify basic scientific facts classify objects and groups based on simple attributes apply direct formulae to solve simple problems set in familiar contexts

The national distribution is shown in the graph below. Sixty-three-point three percent earners meet or exceed grade specific curriculum level expectations.
The graph below shows the national and gender wise distribution of learners on proficiency levels

Figure 45: National gender wise proficiency distribution in S3 science



Approximately 79% of male learners met or exceeded grade-specific curriculum expectations, compared to 70.6% of female learners, indicating a disparity in achievement between the two groups.

6.3. Learners' science achievements by province

The mean scale scores and number of participants by province in science S3 is presented in the table below.

Table 49:Science mean scale scores by province

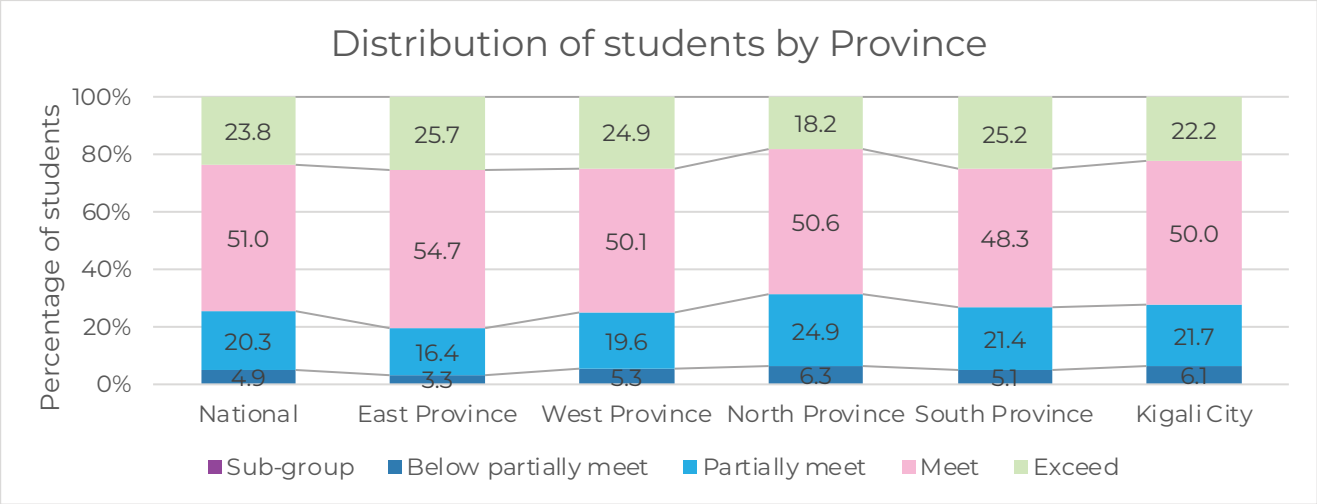
Province	S3	
	N	Mean scale score
East Province	1520	537.2 (Max)
Kigali City	510	528.7
North Province	1044	524.5 (Min)
South Province	1502	532.8
West Province	1264	533.5

The mean scale score for the North province in S3 science was significantly lower (524.5) than the national average. This suggested that learners in the North province were not performing as well as their peers nationwide at this level.

Learners' achievement in performance standards by province

The graph below displayed the distribution of learners by provinces. In the East Province, 80.4% of learners met or exceeded grade-level expectations, while in the North Province, the figure was 68.8%.

Figure 46: Proficiency distribution of learners by province for science



Male learners in each province performed better than female learners. The difference between male and female learners was the more pronounced in West and North province than Kigali City.

6.4. Learners' achievements in science by district

The mean scale scores and number of participants by province in science S3 is presented in the table below.

Top Performing Districts

The districts Nyagatare, with a mean scale score of 553, and Nyamagabe, with a mean scale score of 552, were significantly higher than the national mean and were the top-performing districts.

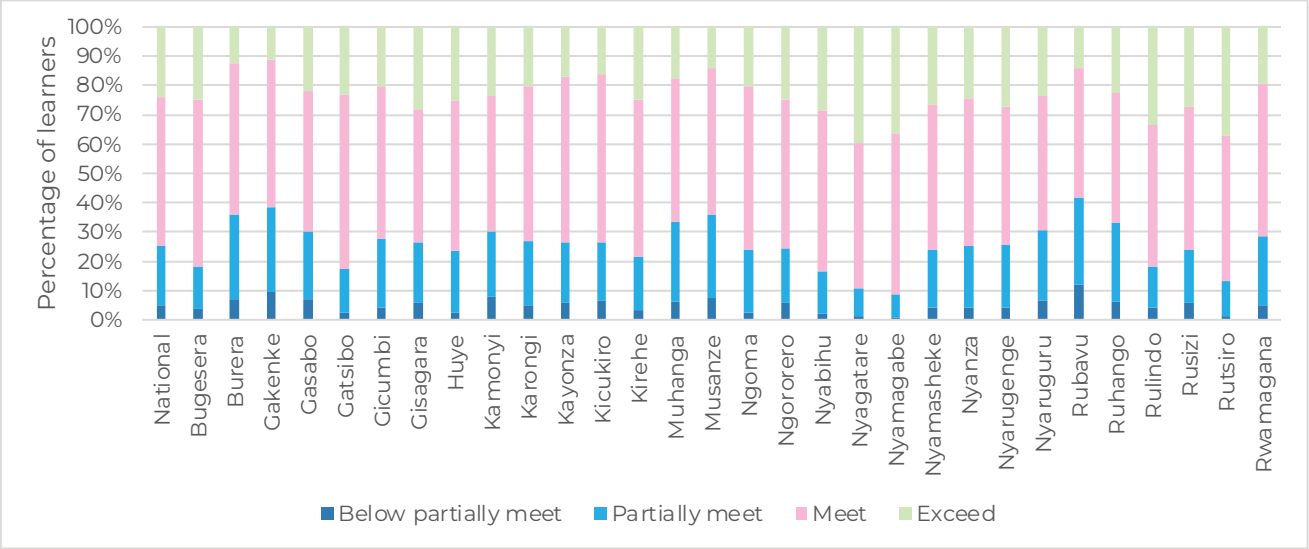
Lowest performing districts

The mean scale score for Burare (517), Gakenke (515), and Musanze (518) was significantly below the national average. These districts were the low-performing districts. For all other districts, the difference in mean scale score from the national average was not statistically significant, suggesting equitable access to quality education across these districts. Detailed information on mean scale scores by district was provided in the technical report.
Detailed mean scale scores of all districts were provided in the technical report.

Learners' achievement in performance standards by district

The graph below shows the distribution of learners in the 4 proficiency levels by district.

Figure 47: Proficiency distribution of learners by district for science



Ninety-one-point three percent of learners in Nyamagabe met or exceeded grade-level expectations, which was significantly higher than the national average of 74.8%. The lowest percentage was recorded in Rubavu (58.2%).

6.5. Learners' science achievements by location

Urban learners' performance was slightly better than their rural counterparts, with a mean scale score of 534.2 compared to 532.1 in rural areas in S3 Science. Standard error was higher in urban areas, suggesting greater variability in learner performance compared to rural areas.

Table 50: Science S3 mean scale scores by location

Location	S3			
	N	Mean scale score	Std. Error	N
Rural	2879	532.1	1.6	4956
Urban	2960	534.2	4.0	884

Table 51: Science S3 comparative mean scale scores by location

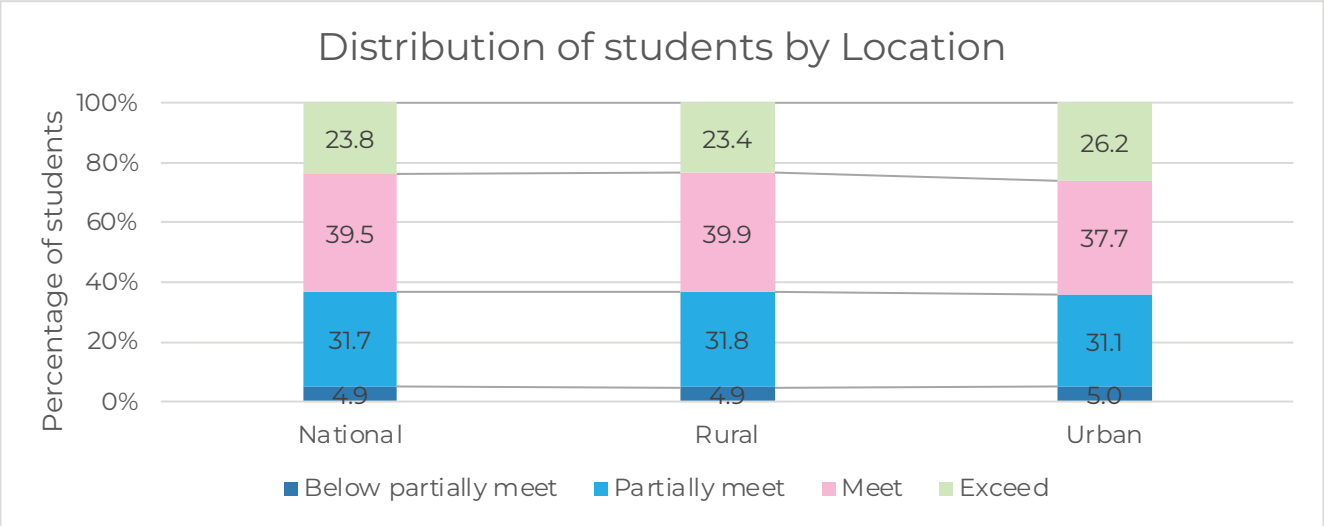
Location	N	Mean scale score (male)	SE (male)	N	Mean scale score (female)	SE (female)	Achievement gap
RURAL	2434	538.4	1.7	2521	526	2	Males have higher mean
URBAN	445	537.8	4.1	439	531	5	Not significant
National	2879	538	2	2960	526.6	1.7	Males have higher mean

Male learners showed significantly better performance (538.4) than female learners (526), measured by mean scale score, nationally as well as in rural areas. In urban areas, males scored 537.8 and females 531, but the difference was not statistically significant.

Learners' science achievements by location

The graphs below show the distribution of learners in the proficiency levels by location.

Figure 48:Proficiency distribution of learners by location for science



No significant difference was recorded between rural and urban learners in meeting or exceeding grade-level expectations.

6.6. Learners' achievements by status

Learners in public schools performed better in science at the S3 level. The standard error was slightly higher for these schools, indicating more variability in learner performance. Sample sizes (N) were larger in government-aided schools, which may have reflected broader enrolment or coverage.

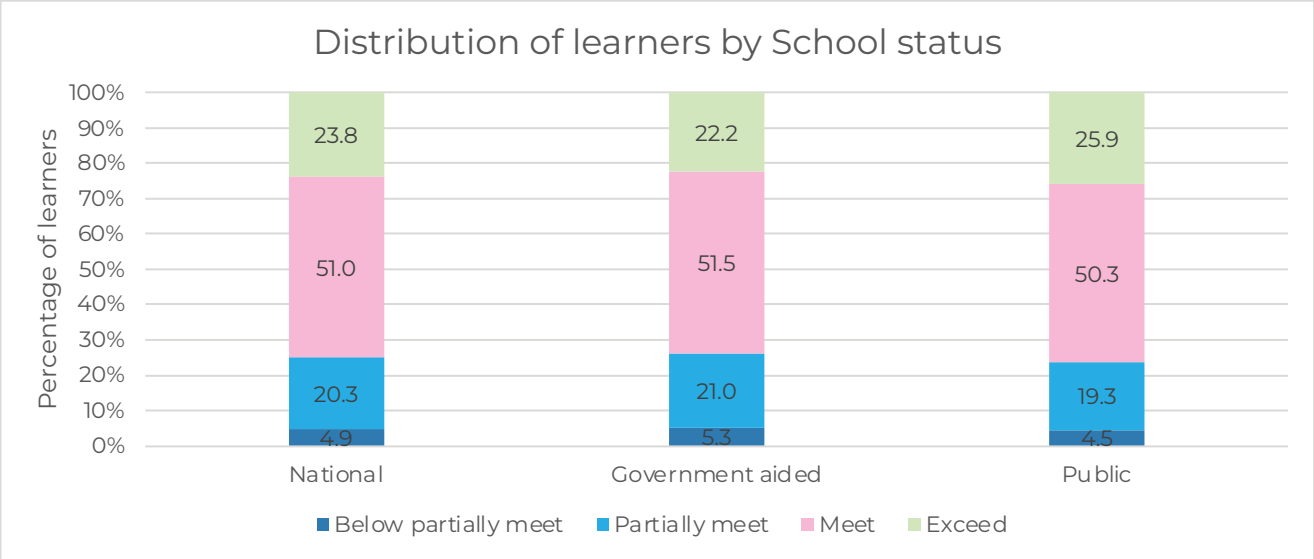
Table 52: Science S3 mean scale score by type of school status

Status	N	Mean scale score
Government Aided	3409	530.7
Public	2431	534.6

Learners' achievements in performance standards by school status

The graph below showed the performance of learners in government-aided and public schools. In government-aided schools, 73.8% of learners met or exceeded the curriculum expectations, while in public schools, the figure was 76.2%, indicating better facilities in public schools at the ordinary level.

Figure 49: Proficiency distribution of learners by school status for science



Performance of learners in S3 science test

Learners' performance on the test shows a balanced and well-distributed outcome. Most learner scored in the mid-range, indicating average achievement. Very few learners were at the extreme low or high ends, suggesting minimal underperformance and a small group of high achievers. Overall, the results reflect a healthy distribution, with the test effectively differentiating ability levels without being overly easy or difficult.

The question with highest scale score (582) was on identifying subatomic particle in the nucleus of an atom, with only 29% of learners answering it correctly.

The question with lowest scale score (426) was to identify the group of animals that has a backbone and more than 80% of the learners answered it correctly.

Performance of learners in biology

In biology, the two easiest items focused on identifying animals with a backbone and the hormone released by the testes. The high facility values indicate that most learners demonstrated strong recall and understanding of animal classification and human reproductive biology.

Table 53: Science S3 biology performance in terms of what learners know and can do

What they know and can do	Scale score	Facility (% correct response)
Identifies the group of animals that has backbone	426.8	86.2
Identifies hormone released by the testes	458.1	77.9
Interprets a diagram to identify part of the excretory system	536.6	47.5
Determines the organ that connects foetus with mother	519.4	54.8

The two items with the highest scale score (most difficult) in biology focused on the excretory system (diagram) and the organ that connects foetus with the mother. Nearly half of the learners struggled with interpreting the excretory system diagram and understanding reproductive processes beyond basic facts.

The biology data shows a generally stronger performance, with several items answered correctly by 70% and above, indicating that students are more confident with recall-level concepts such as identifying organs, understanding simple reproductive facts, and defining the water cycle. However, performance dips on items requiring application and evaluation, such as interpreting digestive system diagrams or explaining the role of white blood cells (WBCs) suggesting that students struggle when concepts must be applied across contexts or when reasoning is required. To deepen understanding, teachers can integrate more diagram based reasoning tasks (e.g., 'Explain how this diagram shows the sequence of digestion') and short application prompts (e.g., 'Why does the body need more WBCs during infection?'). Such targeted practices will help bridge the gap between factual recall and meaningful biological reasoning.

Performance of learners in chemistry

In chemistry, the 2 most difficult items focused on identifying a human activity that increases carbon dioxide content and a factor that accelerates the rate of chemical reactions. The high performance indicates that learners demonstrated strong recall of these concepts, though close to 20% responded incorrectly.

Table 54: Science S3 chemistry performance in terms of what learners know and can do

What they know and can do	Scale score	Facility (% correct response)
Determines the human activity that increases carbon dioxide content	449.88	80.42
Identifies factor that increases rate of chemical reaction	460.45	77.26
Identifies the hardest form of carbon from different carbon forms	521.32	54.02
Defines water cycle	517.29	55.73

In chemistry, the most difficult items by scale score were identifying the hardest form of carbon and defining the water cycle. Nearly half of the learners struggled, as reflected in the low facility values, indicating weak understanding of physical properties of materials and basic biogeochemical cycle.

The performance in the domain of chemistry shows that students answered a few items very well with facility above 75% indicating solid understanding of recall-based and straightforward conceptual questions, such as identifying components of air or recognising factors that affect reaction rates. However, the mid range facility on several questions (around 56–65%) suggest challenges with interpreting properties, evaluating conditions, and applying concepts across contexts, such as evaluating diamond as a cutting material or analysing conditions affecting reaction speed. To improve conceptual depth, teachers can incorporate real-life application prompts of comparing the properties of carbon allotropes (e.g. 'Why is graphite used as a lubricant, but diamond is not?') and use guided comparison tasks to help students reason about material properties, reaction conditions, and chemical changes. These practices will help students move beyond memorisation to meaningful understanding.

Performance of learners in physics

In physics, the 2 easiest items by scale score involved applying knowledge of simple machines in doing work and calculating power in watts. The facility values indicated that learners demonstrated good recall and application of these fundamental concepts, though nearly 25% still struggled.

Table 55: Science S3 easiest items by scale score in physics by ascending scale score

What they know and can do	Scale score	Facility (% correct response)
Applies the knowledge of simple machines in doing work	464.33	76.06
Calculates power in watts	466.97	75.17
Identifies subatomic particles in a nucleus of an atom	582.79	29.05
Justifies the reason behind temperature difference in oceans	581.57	29.49

In physics, the most difficult items involved identifying subatomic particles in the atom's nucleus and explaining temperature differences in oceans. Nearly 29% learners demonstrated understanding of atomic structure and thermodynamic concepts in physics.

The pattern in the data shows that while a few physics questions were answered correctly by more than 70% of students, most responses fell in the mid range, and a few questions showed very low accuracy (<40%), indicating notable gaps in higher order reasoning. This suggests that students are comfortable with basic recall and simple application, but struggle when tasks require interpretation, justification, or multi step thinking for example, evaluating the efficiency of a heat engine or explaining temperature differences in oceans. To strengthen performance, teachers can provide targeted re teaching on low scoring items using error analysis (e.g., discuss why a distractor seemed correct) and incorporate scaffolded analytical tasks, such as asking students to 'explain why the graph shows non uniform motion' or 'justify how changing the load affects work done'. Embedding short reasoning prompts routinely will help students move beyond procedural accuracy, toward deeper conceptual understanding.

6.8. Summary

In LARS 2025, the science pen-and-paper assessment was administered for S3. The assessment was developed in accordance with the national curriculum, the SDG 4.1.1 measurement requirements, and the UIS reporting criteria. A total of 30 curriculum-aligned questions were included, ensuring consistency with the Rwanda national curriculum.

The science assessment demonstrated strong reliability, with the Cronbach's alpha value exceeding 0.80 for the S3 science test.

There was a significant difference between male and female learners in science performance with male learners outperforming female learners at the national level. The national average score for male candidates (538) was 11 points higher than that of female candidates (527). The lower performance by female learners was reflected across the entire distribution suggesting that female learners as a whole need support to improve learning in science.

The North Province recorded a significantly lower mean scale score in S3 science (524.5) compared to the national average, indicating weaker performance. Sixty-nine-point two percent of learners in the East Province met or exceeded grade-level expectations, while the North Province lagged behind at 68.8%.

In S3 Science, urban learners slightly outperformed their rural counterparts, with a mean national scale score of 534.2 compared to 532.1 in urban areas. Both nationally and in rural regions, male learners had a mean scale score significantly higher (538.4) than female learners (526), indicating a notable gender gap. In urban areas, male learners scored 537.8 and female learners 531; however, this difference was not statistically significant.

The districts in general had a scale score similar (statistically insignificant differences) suggesting equitable access to quality education across the districts. Nyagatere (553) and Nyamagabe (552) had mean scale scores that were significantly higher than the national mean (532.4).

On the other hand, Musanze (518), Gakenke (515), and Burera (517) were the lowest-performing districts, with mean scores significantly below the national average.

Learners showed strong recall skills in science across domains. For example, 86% correctly identified animals with backbones, and 80% recognised human activities that increase carbon dioxide. However, performance dropped on complex items: only 47% could interpret an excretory system diagram, and just 29% identified subatomic particles in an atom's nucleus. These results highlight strengths in factual recall and challenges in conceptual understanding across domains.

7. Factors associated with learning achievement in LARS 2025

Learning is shaped by a diverse range of experiences and activities at home, in school and in classroom. It does not occur in isolation; rather, it is affected by a significant number of factors including family support and environment, school and classroom conditions, and teacher interactions. Because learning is not shaped by a single factor, understanding what works and for whom is essential for interpreting assessment results and ensuring fair learning opportunities for all learners.

To guide educational policymaking effectively, learner assessment data must provide reliable information on differences in learning across cohorts, socio-economic groups, and other relevant contexts. To gain such insights, in a large-scale assessment, it is important to systematically develop and use tools that collect contextual information along with learning assessment data. To capture these critical dimensions, LARS 2025 included the following methods and tools:

- Learner questionnaire
- Parent questionnaire
- Head teacher questionnaire
- Focus group discussions with teachers
- Semi-structured interviews with key stakeholders

The purpose was to build a comprehensive understanding of the factors that impact learning and use the information to support the development of targeted interventions and inclusive educational policies. The findings from the analysis of the data collected from these tools are presented in this chapter. The technical report describes the process undertaken to develop these tools.

7.1. Findings from learners' questionnaire

The analysis for identifying factors associated with learners' achievement was carried out using multiple linear regression method. The items in the questionnaire were grouped together using dimensionality assessment through Principal Component Analysis (PCA) to form indices.

These indices served as the independent variables or predictors and the 5 plausible values-based scale scores on P3 (English and mathematics), P6 (English and mathematics), and S3 (English, mathematics and science) served as the dependent variable or regressor, in the multiple regression analysis. Grade-wise and subject-wise findings of regression analysis are presented in the following sections.

7.1.1. Factors associated with English performance

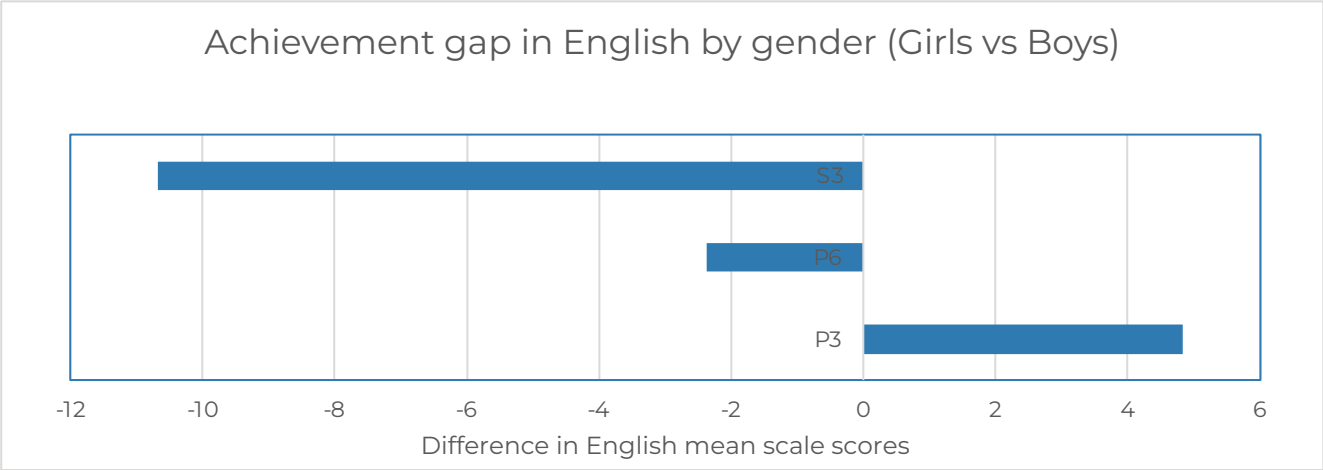
The regression analyses across P3, P6, and S3 English revealed that home environment, parental background, access to learning resources, learner attitudes, and school conditions shape English learning differently at different learning stages.

Gender disparity widens with increase in grades

P3 girls showed better performance than P3 boys with 4.84 scale score points difference on average. This suggests that girls develop early advantages in foundational literacy and language acquisition, which is a commonly observed trend in early primary grades globally .

By S3, the pattern reversed, with girls scoring substantially lower than boys. The difference is of nearly 10 scale scores, which is 0.2 SD, which is equivalent to approximately 6 months to 1 year difference according to most studies . This gap signals that adolescent girls may face barriers such as household responsibilities, reduced study time, or declining engagement that negatively affect English learning. Figure 50 shows difference in performance of girls over boys in terms of English mean scale score.

Figure 50: Difference in English mean scale scores by gender



The findings suggest that gender disparities incrementally vary with age. Therefore, it may require tailored support to sustain girls' early advantage and address emerging challenges during adolescence.

Parental education and employment are strong predictors

Indicators of household economic stability and parental educational attainment showed consistently strong associations with achievement across grades and subjects.

A. P3 learners whose father and mother both were employed full time, scored 19 points higher on average than children whose father and mother were not fully employed. This difference was 29 points for S3 learners. It indicates that a household's economic stability supports better learning opportunities through availability of study materials, reduced stress at home, and greater ability to support schooling.
B. Higher parental education (especially mother's education) emerged as a major predictor of performance among P6 and S3 learners. Educated parents may provide a more literate home environment, better academic support, and place higher value on English learning.

It may have implications for policies targeting economically vulnerable families and supporting adult education that could indirectly strengthen children's academic outcomes.

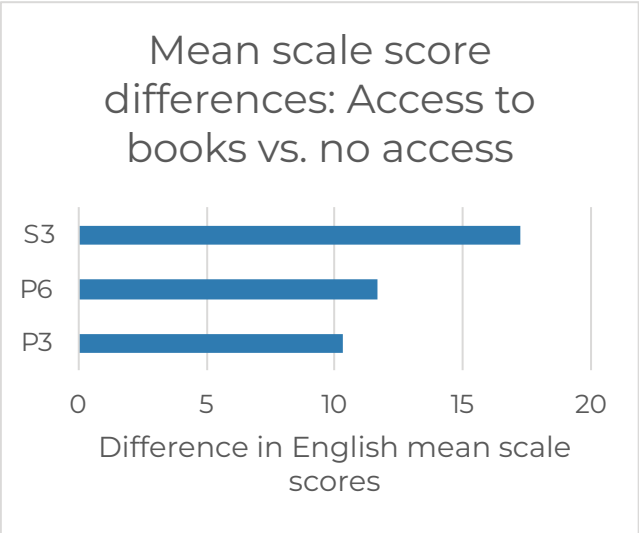
Home learning resources and digital connectivity are drivers of learning

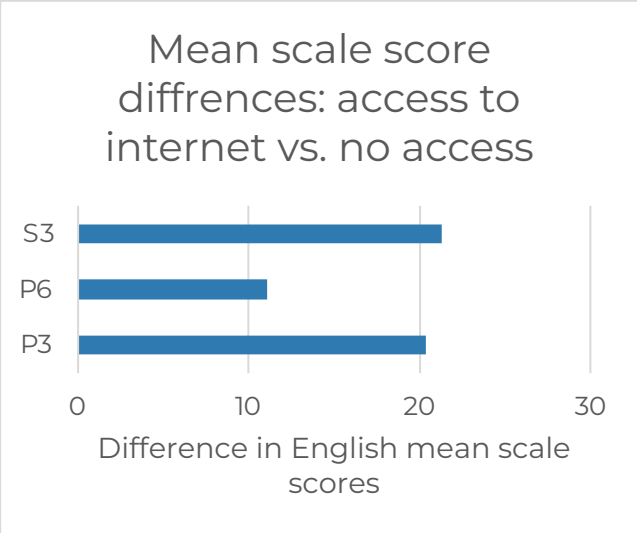
Across grades, robust access to resources significantly enhanced performance.

A. Access to books, electricity, internet, and television was consistently associated with higher learner performance. Figure 50 shows an advantage of at least 10 scale score points for learners with access to books, and an additional 10–20 scale score point advantage for those with access to the internet compared with learners who lacked these resources.
B. Internet access at home was positively associated with achievement, reinforcing the role of digital connectivity in providing access to language and learning resources and engagement with schoolwork (Figure 51).

A resource-rich home is a strong enabling factor for language learning. Expanding digital access, particularly in low-income households, can help bridge learning gaps.

Figure 51: Differences in English performance by access to books and internet

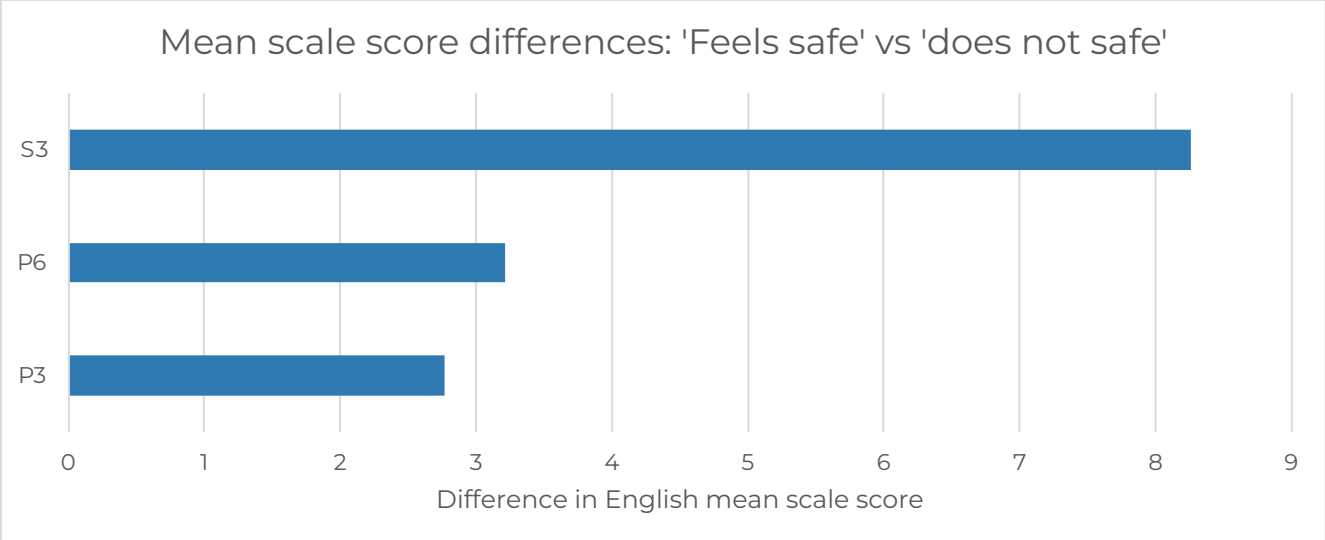




Learner attitudes and perception play a noticeable role, but the effects shift

- Those who reported a stronger liking for reading in P3 and P6 achieved higher scores in English. At S3 level, however, higher reading likability was linked with lower scores, while reading difficulties correlate with higher scores a reversal of the expected pattern. There may be several reasons, including over-reporting of reading enjoyment among low performers, or higher-performing older learners engaging with more challenging reading material and thus reporting more difficulty.
- Negative perceptions of school were associated with lower P3 performance. Children who reported feeling safe at school scored 8.3 scale-score points higher in S3, underscoring learners' reliance on supportive and positive school environments (See Figure 52: Difference in mean English scale score by feeling safe at school).

Figure 52: Difference in mean English scale score by feeling safe at school

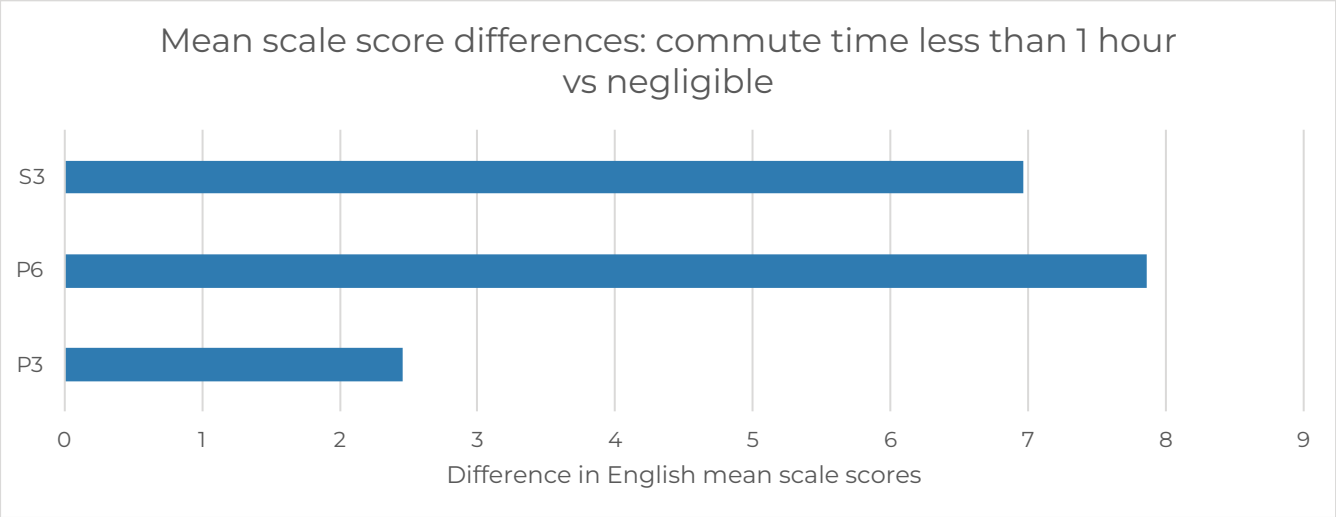


In general, attitudinal measures among adolescents need careful interpretation; they may reflect motivational or self-concept issues rather than actual reading skill.

Accessibility affects learning

Long commute times in P6 and S3 reduce performance by nearly 7 scale score points, highlighting the role of physical access as learners progress to upper grades. Figure 53 shows differences in performance of children with shorter commute times. School distance having a positive effect in S3 suggests high-performing learners may be travelling farther to attend better-quality schools.

Figure 53: Difference in mean English scale scores by commute times to school

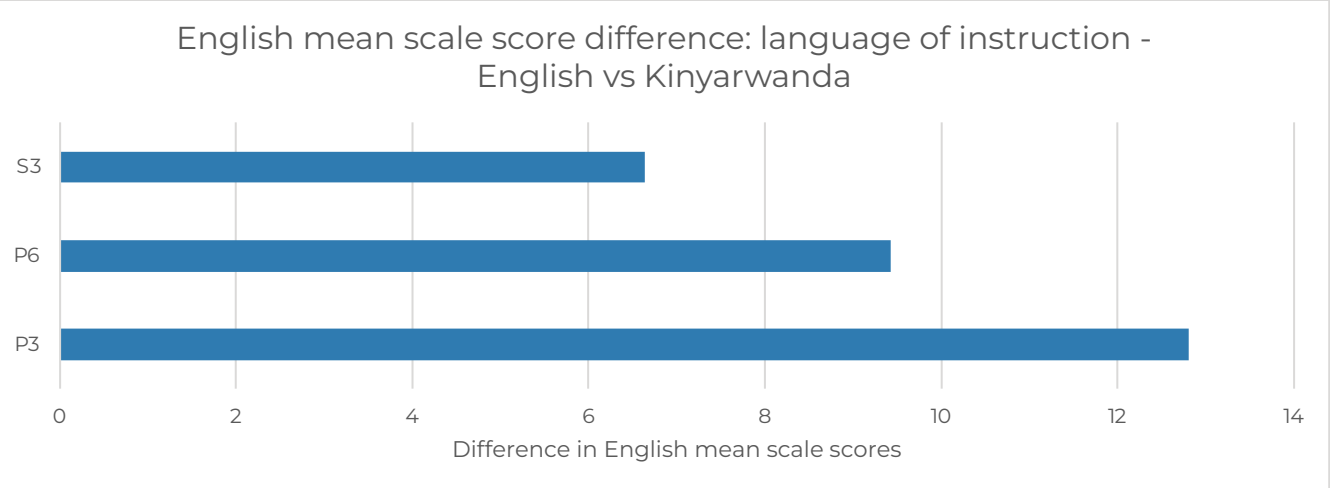


Language of instruction matters in early grades

When Kinyarwanda was used as the language of classroom instruction, learner performance in English declined significantly, pointing to the challenges posed by language-of-instruction in acquiring English literacy skills (decline of 12.8 scale scores in P3). Figure 54 shows the difference in English scale scores when language of instruction is English instead of Kinyarwanda.

Young learners often face challenges when navigating multiple languages, especially if the transition to English for reading and writing is abrupt. Support for bilingual transition in early grades is essential.

Figure 54: Difference in mean English scale scores by language of instruction



During focus group discussions, there was a wide agreement around the challenges associated with the use of English as the medium of instruction Participants (n=10) explained that both learners and teachers often struggle with the language, which makes classroom engagement and concept mastery more difficult. One teacher reflected,

'Both learners and teachers struggle with the language, making teaching and learning more difficult.'

The issue was also linked to parental involvement. Since most parents speak only Kinyarwanda, they are unable to assist their children with English-based learning at home, further limiting learner support outside the classroom.

Several teachers suggested that the language policy should be reconsidered, particularly in lower primary grades where learners would benefit from learning in their mother tongue. They also highlighted that examinations set in English often use language too advanced for learners' levels, leading to poor performance. One teacher commented,

'In lower primary, assessments are conducted in English. However, the level of English used in exams prepared by NESA and the districts is often too advanced for our learners to understand... I recommend a change in the language of instruction.'

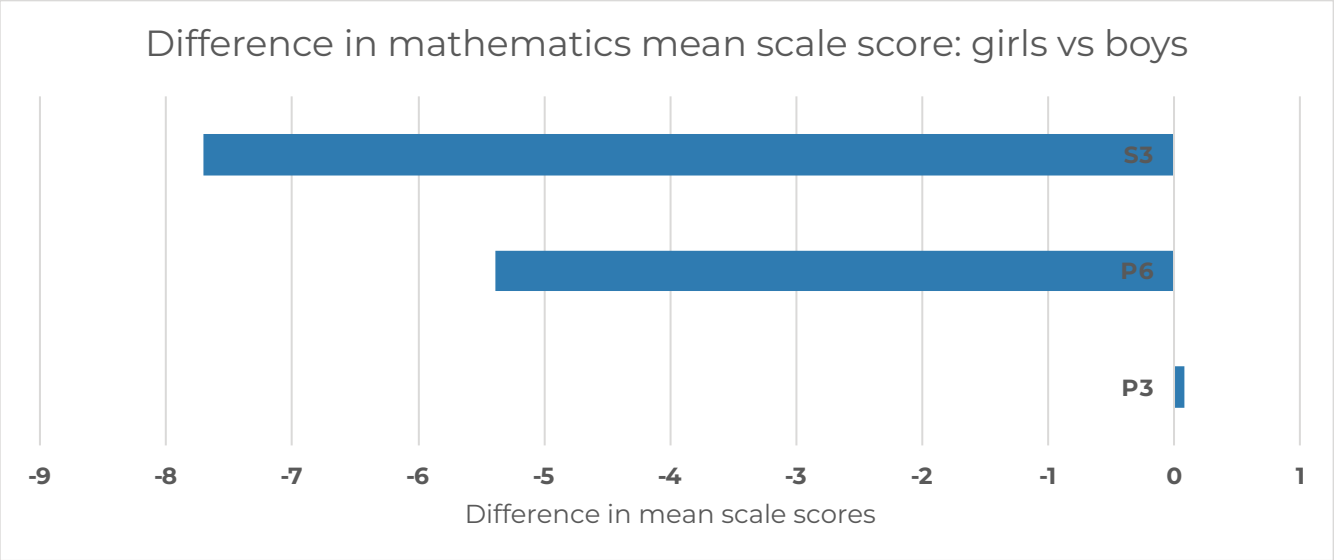
7.1.2. Factors associated with mathematics performance

The regression analyses across P3, P6, and S3 mathematics highlight a consistent yet evolving set of factors shaping learners' mathematical achievement. Like English, the results highlight the influence of home environment, parental employment, access to learning resources, learner attitudes, and school conditions on mathematics performance too.

Gender differences persist and widen in higher grades

A. In P6 and S3, girls scored significantly lower than boys (mean scale score difference in P6: –5.40 and S3: –7.70), reflecting a persistent and widening gender gap in mathematics as learners progress through school. Figure 55 shows difference in performance of boys and girls in terms of mathematics mean scale score.
B. Unlike English, where early advantages for girls were observed and later reversed, mathematics shows a more consistent gender disadvantage for girls from middle to secondary grades.

Figure 55: Difference in mathematics mean scale scores by gender



These patterns point to long-standing gendered norms around mathematics confidence, expectations, and support. Targeted interventions may be needed to address confidence, self-efficacy, and classroom participation among girls.

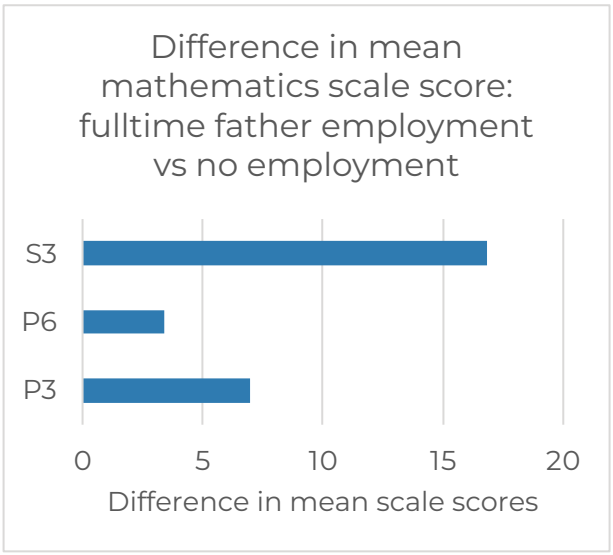
Parental employment strongly supports mathematics learning

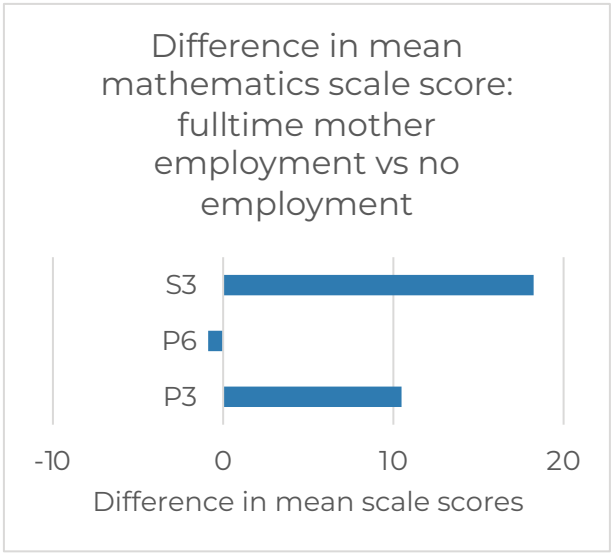
Similar to English, Parental full-time employment emerges as a stable and positive predictor of mathematics performance:

A. Mother's full-time employment significantly boosts performance in P3 and S3. The mean scales score increases by 10.5 in P3 and 18.3 in S3.
B. Father's full-time employment is associated with higher scores in P3 and S3. The mean scales score increases by 7.0 in P3 and 16.8 in S3.

Figure 56 shows the difference in mathematics scale scores by parent's employment. These associations point to the role of economic stability, availability of learning support at home, and the likelihood of better access to academic resources in promoting mathematics achievement.

Figure 56: Difference in mean mathematics scale score by parent's employment

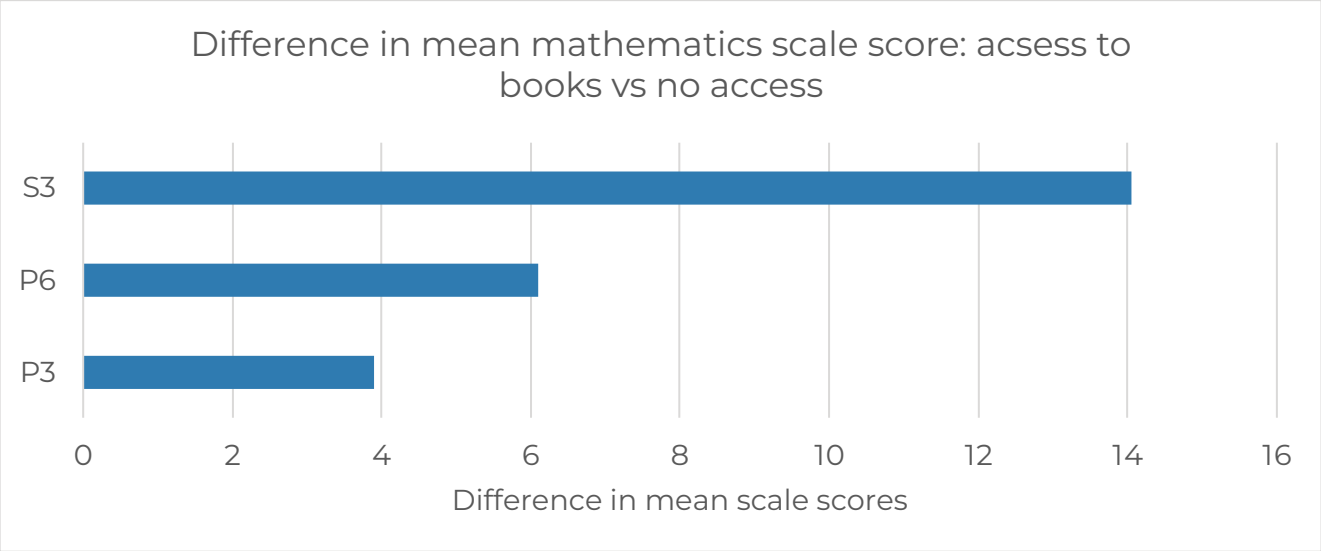




Home learning resources show mixed but strong effects

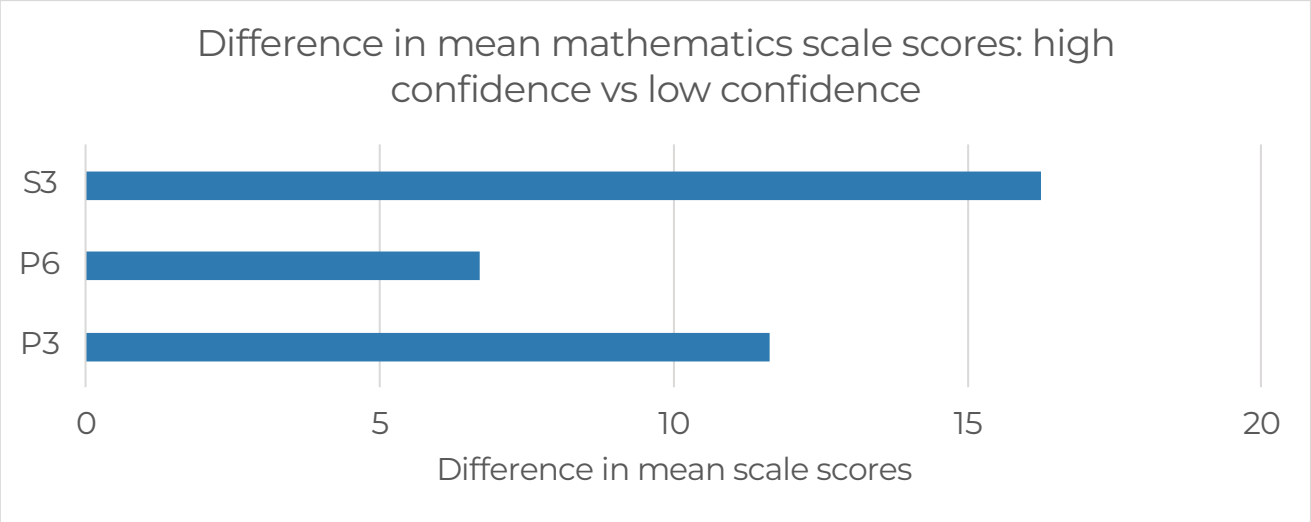
Access to books significantly improves performance in S3 mathematics with an increase in 14 scale scores, highlighting the value of print-rich home environments even for numeracy-related outcomes. Figure 57 shows the difference in performance of children who has access to books.

Figure 57: Difference in mean mathematics scale scores by access of books



- Television availability shows opposite effects across grades positive in P3 but negative in P6. This may reflect differences in the type of media consumption, content exposure, or supervision as learners grow older.
- A greater number of rooms at home, unexpectedly, predicts lower P6 performance. This may reflect confounding influences such as parental absence, larger households, or reduced study focus.

Figure 58: Difference in mean mathematics scale scores by mathematics confidence



As pointed in English, this could reflect motivational dynamics, self-reported perceptions, or cognitive trade-offs in older learners, and adolescent self-perceptions require more careful interpretation.

Kinyarwanda as language of instruction predicts low mathematics performance

- In P3, using Kinyarwanda as the medium of instruction is associated with significantly lower mathematics scores, 10.8 scale score on average, suggesting early confusion when the instructional language diverges from the language of assessment.
- In P6, however, teachers' use of Kinyarwanda in the classroom slightly improves performance (4.4 scale score points), indicating that familiar language support may strengthen conceptual understanding in mathematics as content becomes more complex.

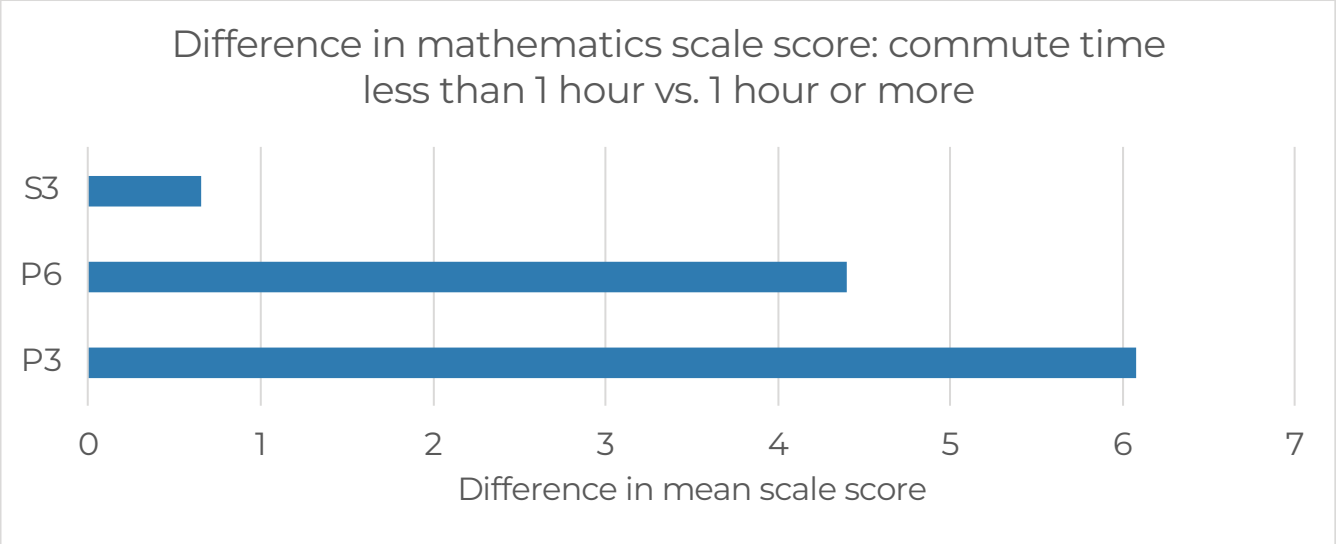
This shift reiterates the need for carefully sequenced bilingual instruction, especially in mathematics.

Accessibility remains a barrier

- Longer school commute time reduces achievement across all grades where it is significant. Figure 59 shows difference in performance of children by school commute time and the difference is higher is primary grades, more than 4 scale score points in P3 and P6.
- In S3, greater school distance surprisingly predicts higher achievement, suggesting that some high-performing learners travel farther to attend better-quality schools.

Improving local school quality and reducing travel burdens may improve equity in mathematics outcomes.

Figure 59: Difference in mathematics scale score by school commute times



7.1.3. Factors associated with S3 science performance

Household resources proved important, with books at home showing a positive effect on achievement with a difference of 9.3 scale score points on average. Mother's education at the upper secondary level and above also contributed significantly with 24 scale score points difference, reinforcing the role of parental background. Father's full-time employment had a similar positive influence with a difference of 15 scale score points.

Girls scored significantly lower than boys in science by 12 scale score points on average, pointing to a gender gap at the secondary level. Those with stronger likability for reading performed worse in science, while learners reporting reading difficulties tended to score higher. Longer commute times were associated with lower scores (2 scale score points).

The regression analysis results identifying the significant learner background variables associated with S3 science performance are given in Appendix V.

7.2. Findings from head teachers' questionnaire

This section is based on the analysis - how background variables from the head teacher questionnaire are related to learner academic performance across grades and subjects. Like learners' questionnaire, PCA was used to form indices. The school-level averages of learner scale scores were treated as the dependent variables and head teacher questionnaire indices as the independent variables.

The independent variables considered in the analysis included school status (public or government-aided), school location (urban or rural), and the number of shifts in operation. School-level resources and facilities such as libraries, computer labs, science and mathematics labs, internet availability, playgrounds, canteens, and other equipment were also taken into addition, indices capturing different types of constraints and support were included such as: Information and Communication Technology (ICT) constraints, teacher capacity constraints, and basic infrastructure constraints. Further, measures of parental involvement (volunteering and participation) and learner-related factors (disability status, behavioural problems, and absenteeism) were incorporated into the models.

Overall, the associations between school-level characteristics and learner performance were limited, with only a small number of variables showing meaningful effects across subjects and grades. Significant associations have been discussed below.

7.2.1. Factors associated with English performance

Learners in classes with fewer than 40 learners performed better in both P3 and S3 English.

Large class sizes likely limit individual attention and reduce opportunities for language practice. Smaller classes appear to create more effective learning conditions for language acquisition. The figure below indicates that learners in schools with class size below 40, performed better than their counterparts in schools with larger class sizes by up to 15 scale score points.

Figure 60: P3 English mean scale score by class size

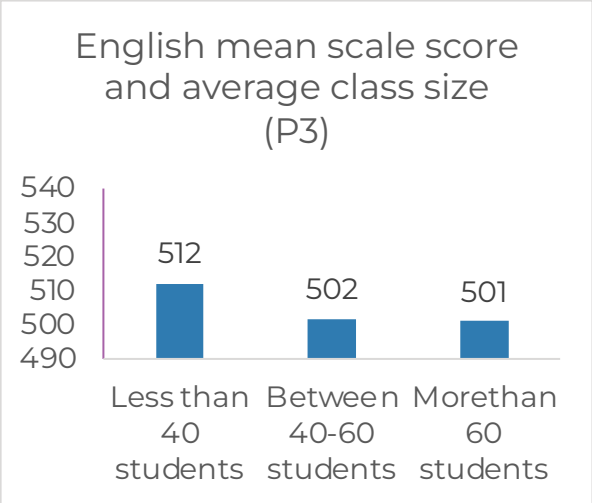
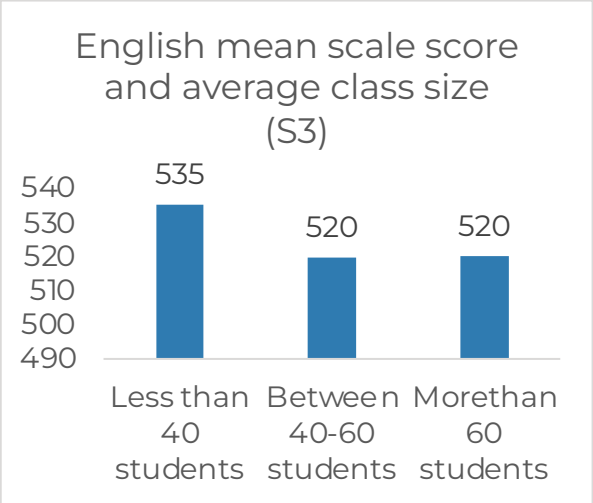


Figure 61: S3 English mean scale score by class size



Across all 3 grades, urban schools consistently outperformed rural schools.

This suggests that learners in urban settings benefit from better access to trained teachers, stronger school infrastructure, and richer learning resources. The persistent urban advantage indicates systemic disparities that require targeted resource allocation to rural schools.

Single-shift schools showed higher English achievement across grades

This pattern was strongest in P3 and S3, where learners in single-shift schools performed significantly better than those in double or mixed-shift arrangements. The findings imply that fewer shifts may allow more instructional time, reduced crowding, and greater teacher preparedness. The figure below shows that learners in single shift schools performed better than learners in other schools in P3 English.

Figure 62: P3 English mean scale score by school shifts

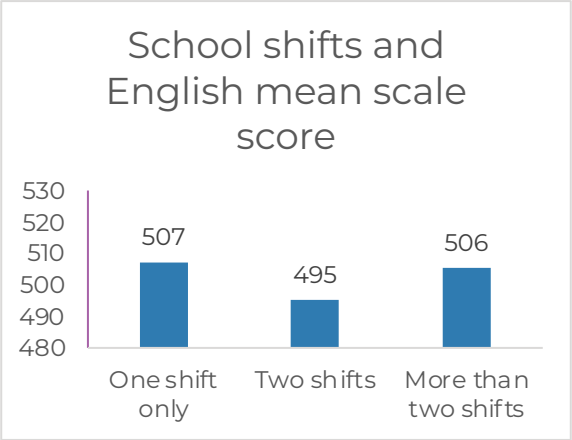
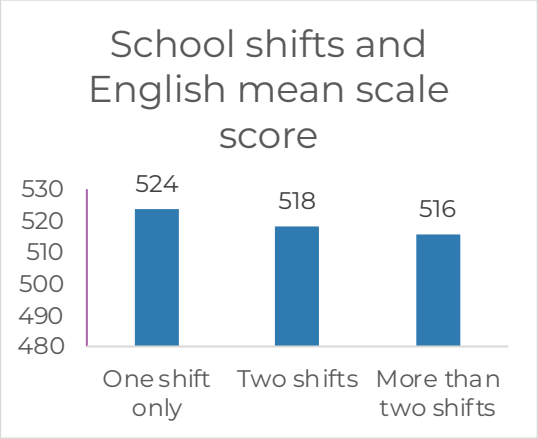


Figure 63:S3 English mean scale score by school shifts



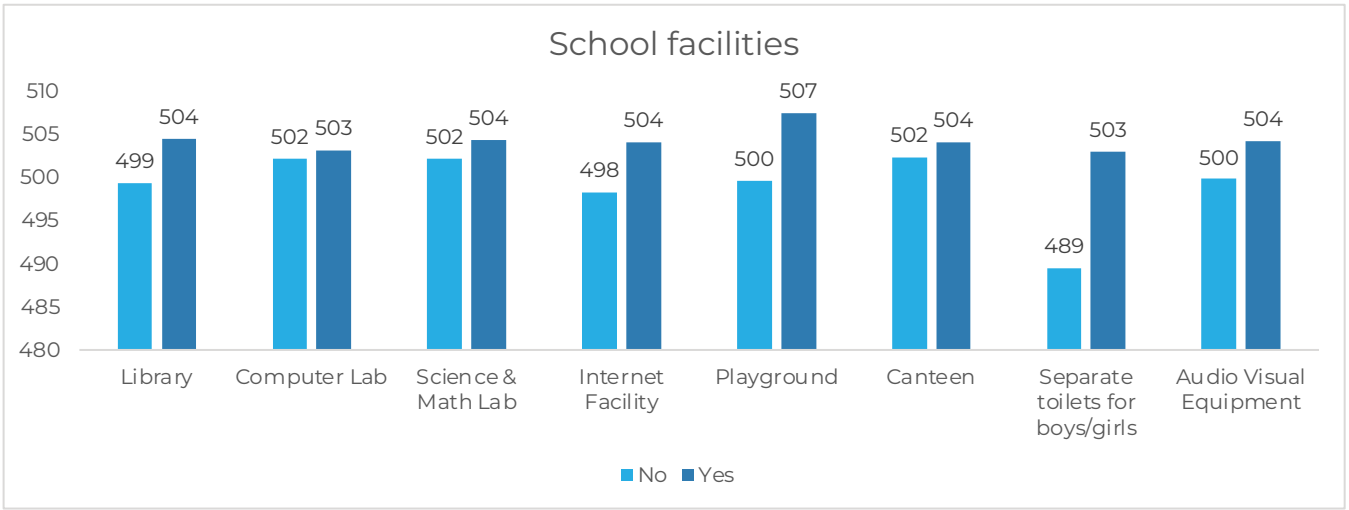
Better school facilities had a consistently positive impact on English performance across grades

Key facilities linked to higher achievement included:

A. Libraries (strongest effects in P6 and S3)
B. Computer labs and internet access (important from P6 onwards)
C. Playgrounds and canteens (significant in S3)
D. Separate toilets (notable in P3)

The following figures illustrate these patterns showing how mean scores varied across some of the variables.

Figure 64: P3 English mean scale score by school facilities



The biggest differences in performance are seen in schools with libraries, computer labs and internet facilities.

Figure 65: P6 English mean scale score by school facilities

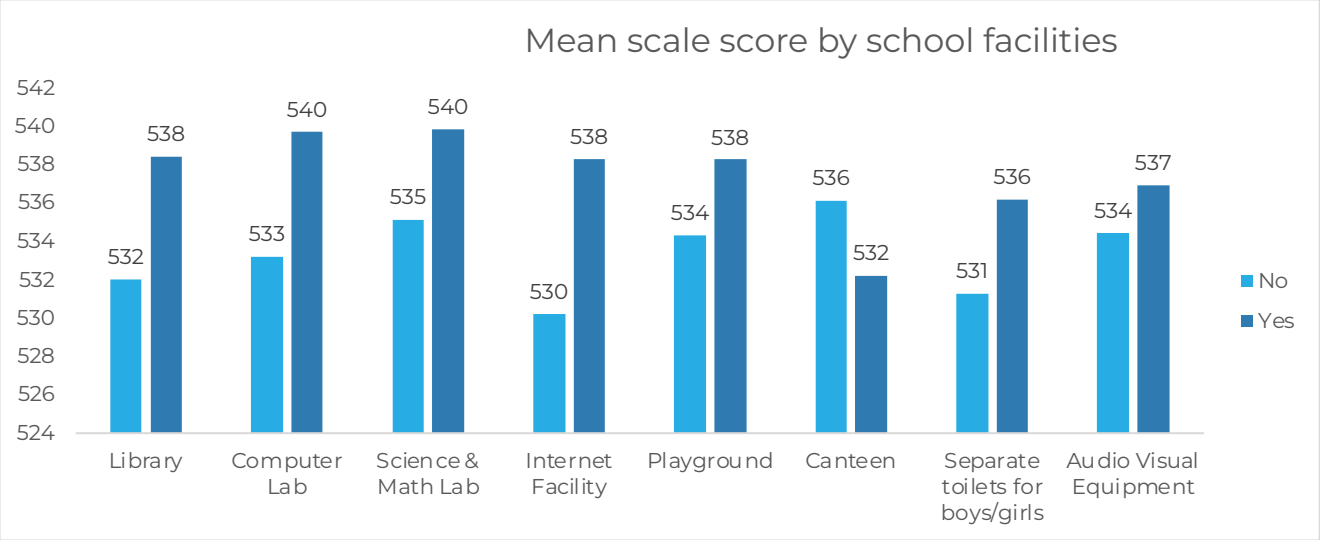
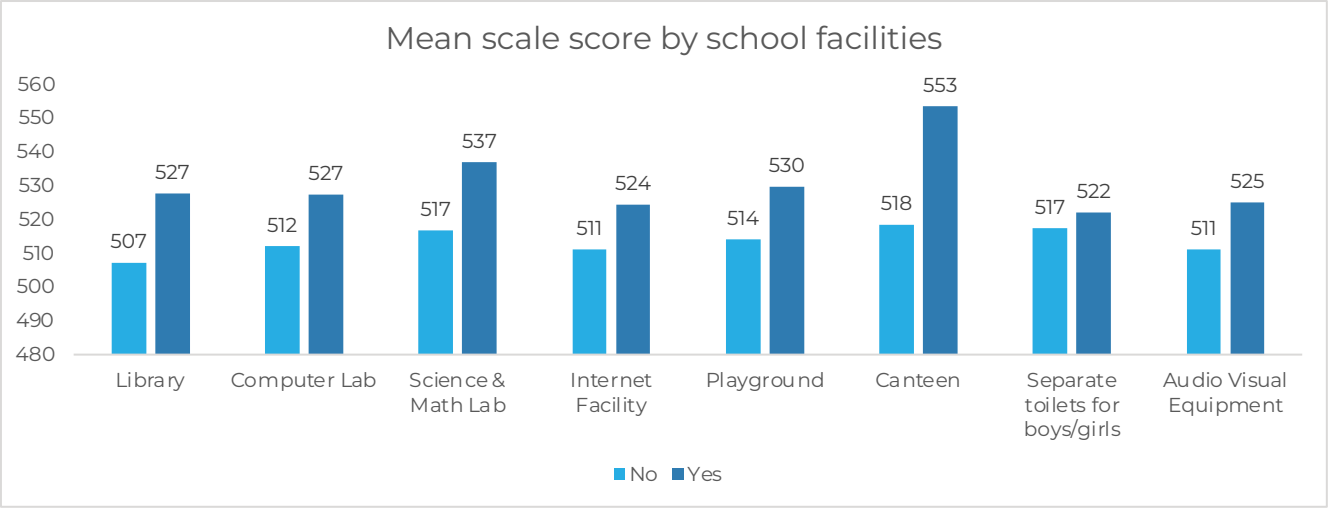


Figure 66: S3 English mean scale score by school facilities



These findings highlight that investment in holistic infrastructure not only academic spaces contributes to improved language learning.

Parental involvement played a notable role.

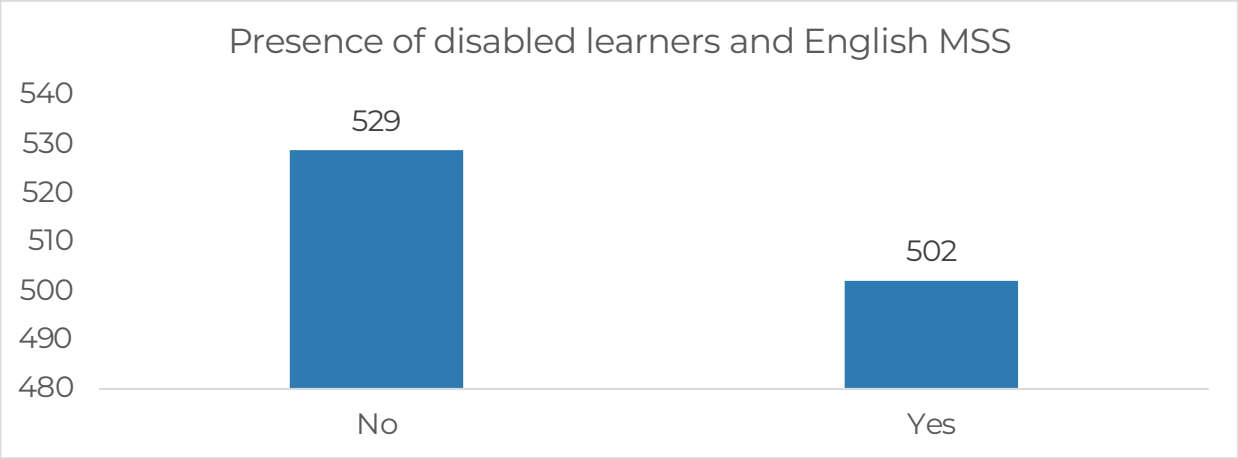
Active parental participation was linked to higher early language proficiency, particularly in P3 English, reinforcing the importance of family engagement in foundational literacy development. It was also evident from the regression analysis of learners' questionnaire.

Schools with a higher proportion of learners with disabilities showed lower performance in P3.

This likely reflects insufficient inclusive education support, such as lack of special educators, assistive devices, or adapted learning materials, rather than the abilities of the children themselves. Strengthening inclusive education practices is essential to improve outcomes for all learners.

The figure below suggests that learners in schools without disabled learners showed better performance in English at P3 level than learners in schools with disabled learners.

Figure 67:P3 English mean scale score by presence of disabled learners



Absenteeism is a significant inhibitor
Learners with higher absence rates performed considerably worse, showing that consistent attendance is critical for language development, where cumulative practice and exposure matter.

Access to internet facilities improved English performance in P6 and S3, indicating the growing value of digital resources in upper grades. Conversely, ICT-related constraints in S3 were associated with lower performance, highlighting unequal digital readiness across schools.

7.2.2. Factors associated with mathematics performance

There was a mixed trend in mathematics. In P3, only one variable emerged as significant. Schools that reported higher ICT-related constraints had lower average mathematics performance. Some other factors have been explained below. P6 analysis of parents' questionnaire did not reveal any significant predictors among the school and parental factors considered. Certain factors with visible differences have been discussed in this section.

The effect of average class size varied across grades. In P3 and S3, learners in classes with fewer than 40 learners performed better, indicating that smaller classes support foundational and secondary mathematics learning through more personalised attention and manageable instructional environments. In P6, however, larger classes showed unexpectedly higher performance. This may reflect contextual factors such as teacher allocation patterns, grouping of high-performing learners, or unmeasured school-level characteristics.

Despite the mixed pattern at P6, the overall evidence from English and mathematics suggests that reduced class size is beneficial at the start and end of basic schooling.

Figure 68: P3 mathematics mean scale score by class size

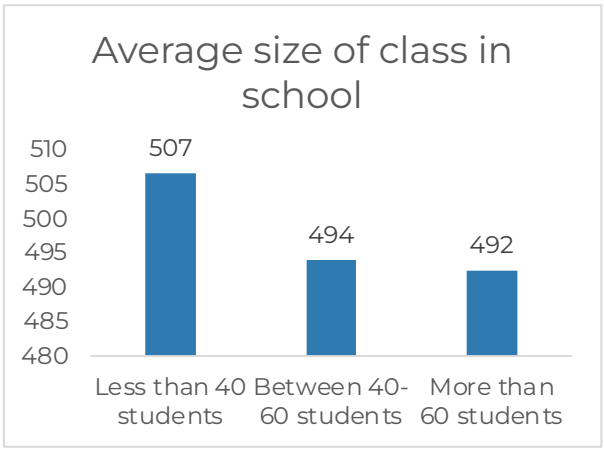


Figure 69: P6 mathematics mean scale score by class size

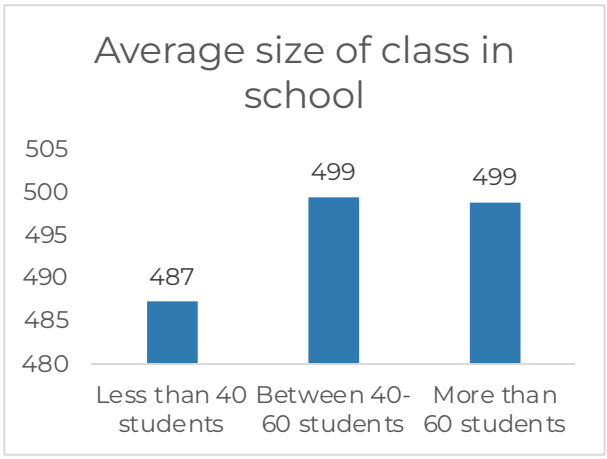
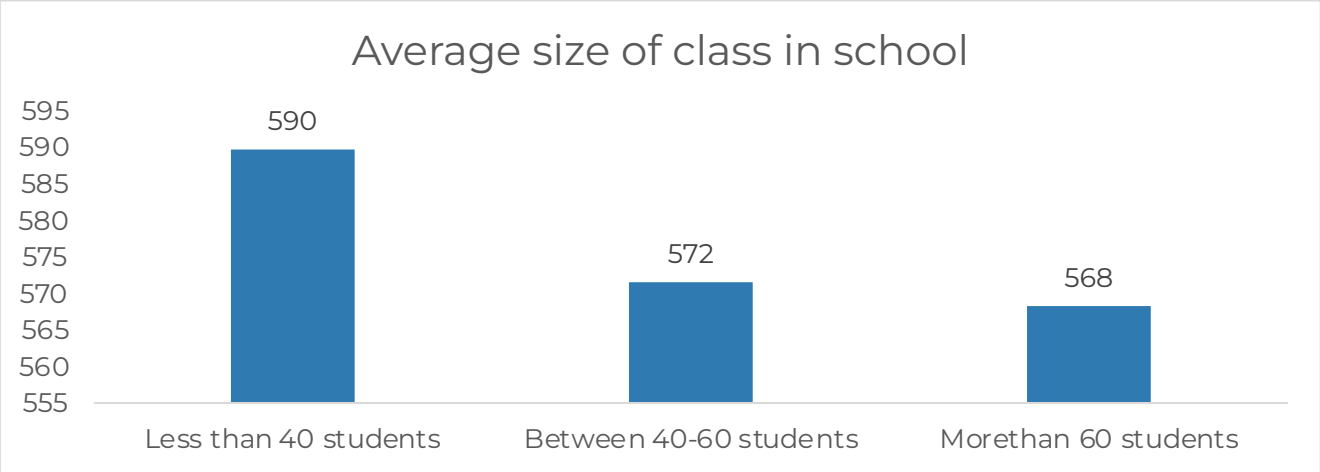


Figure 70: S3 mathematics mean scale score by class size



Large class sizes were reported as a major barrier to effective teaching and learning during focus group discussions as well. Participants (n=10) explained that high numbers of learners in a single classroom limit opportunities for individual attention, reduce the quality of assessment, and put additional strain on teachers. One teacher described,

'The main challenge I face is the large class size. With 60 learners, it's difficult to provide individual support.'

Teachers emphasised that smaller classes would enable more meaningful engagement and higher quality instruction. A participant suggested,

'If given the opportunity, I would reduce the number of learners in each classroom to a maximum of 45 to ensure better teaching and learning conditions.'

Overcrowded classrooms and high teacher-learner ratios were seen as systemic challenges, particularly in public schools, where all learners must be accommodated.
Single-shift schools consistently performed better than multi-shift schools similar to English.

This suggests that single-shift structures may allow more uninterrupted instructional time, reduced crowding, and better classroom management conditions that are particularly critical for mathematics learning.

Figure 71: P3 mathematics mean scale score by school shifts

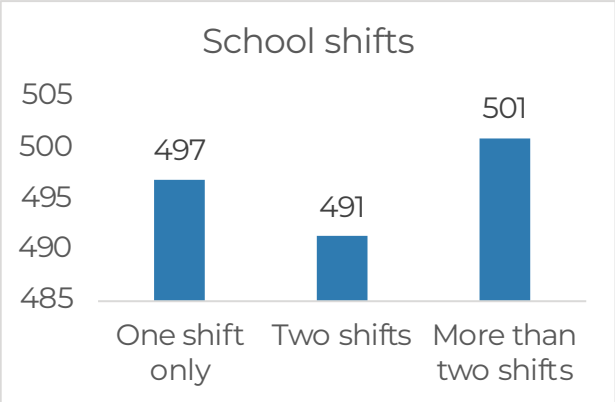


Figure 72: P6 mathematics mean scale score by school shifts

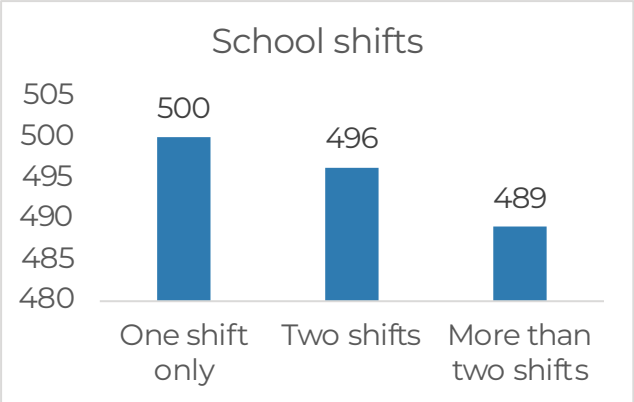
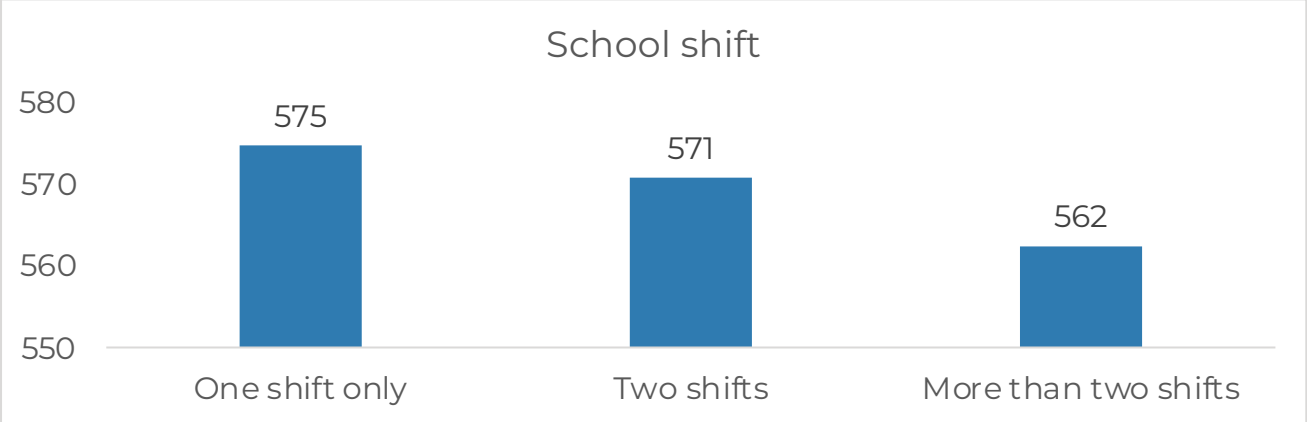
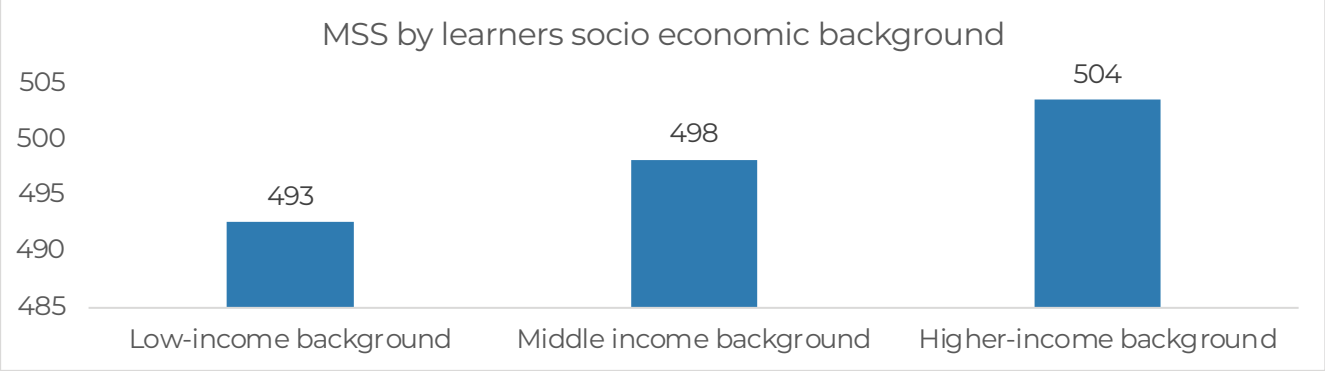


Figure 73: S3 mathematics mean scale score by school shift



Socioeconomic background was explicitly significant at the P3 level. Although not significant for other grade levels there is enough evidence that resource-rich households provide advantages in foundational numeracy.

Figure 74: P3 mathematics mean scale score by learners' socioeconomic background



As the figures below indicate, learners having access to better school facilities showed better performance in mathematics, particularly in higher grades where subject-specific facilities matter more. In P3, facilities such as canteens, libraries, and separate toilets for boys and girls were associated with the largest gains, while at P6 learners with access to libraries, science and mathematics labs, and playgrounds performed better. Canteens, libraries, and science and mathematics labs showing clear performance advantages at S3 level.

Figure 75: P3 mathematics mean scale score by school facilities

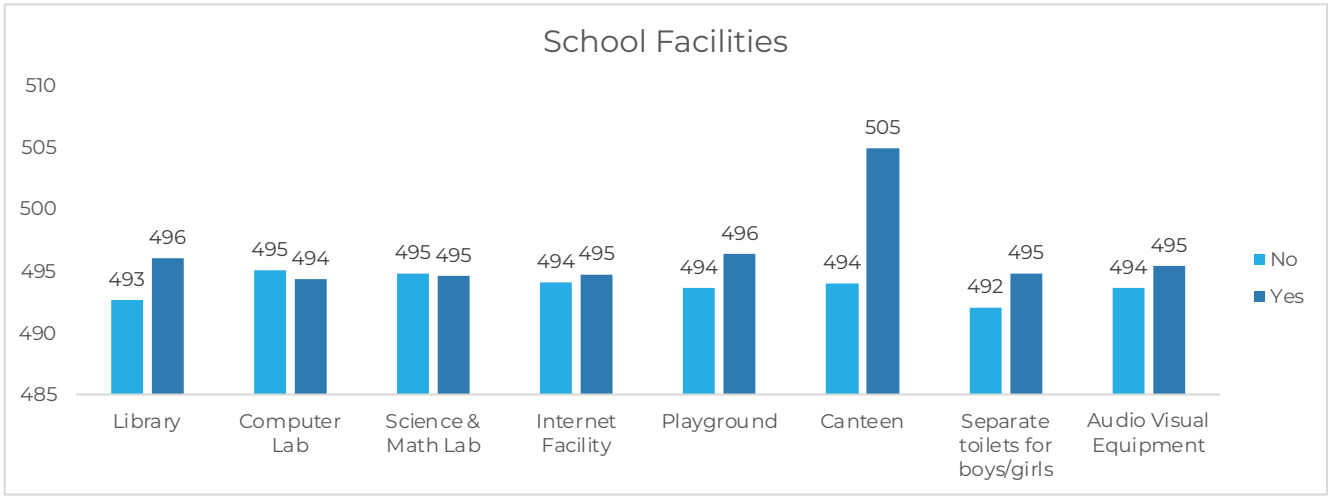


Figure 76: P6 mathematics mean scale score by school facilities

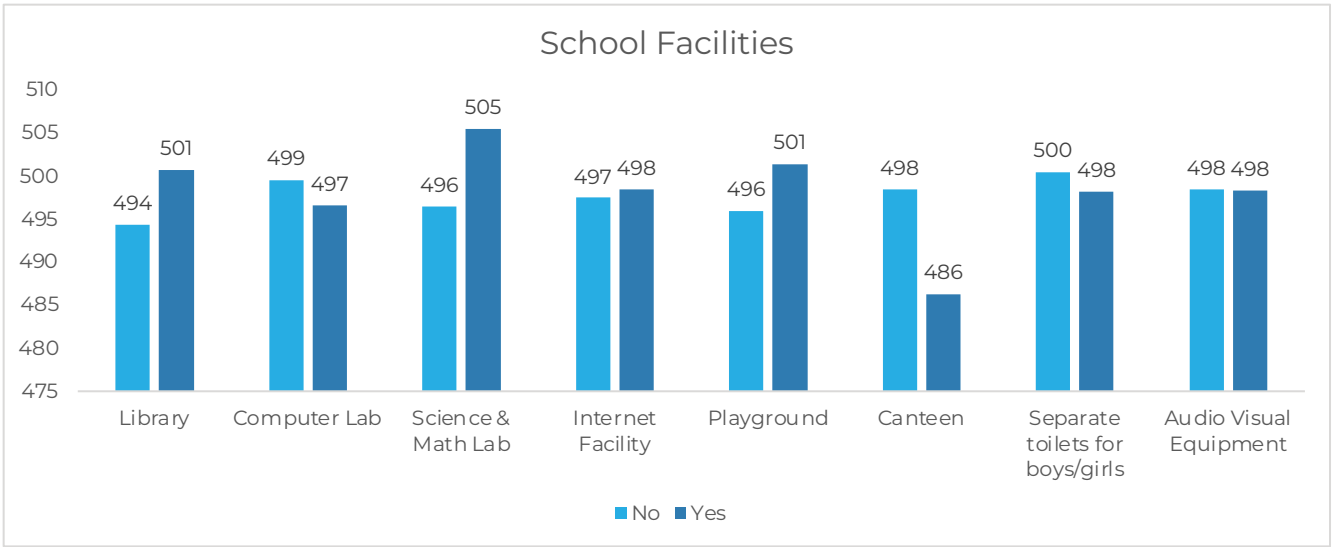
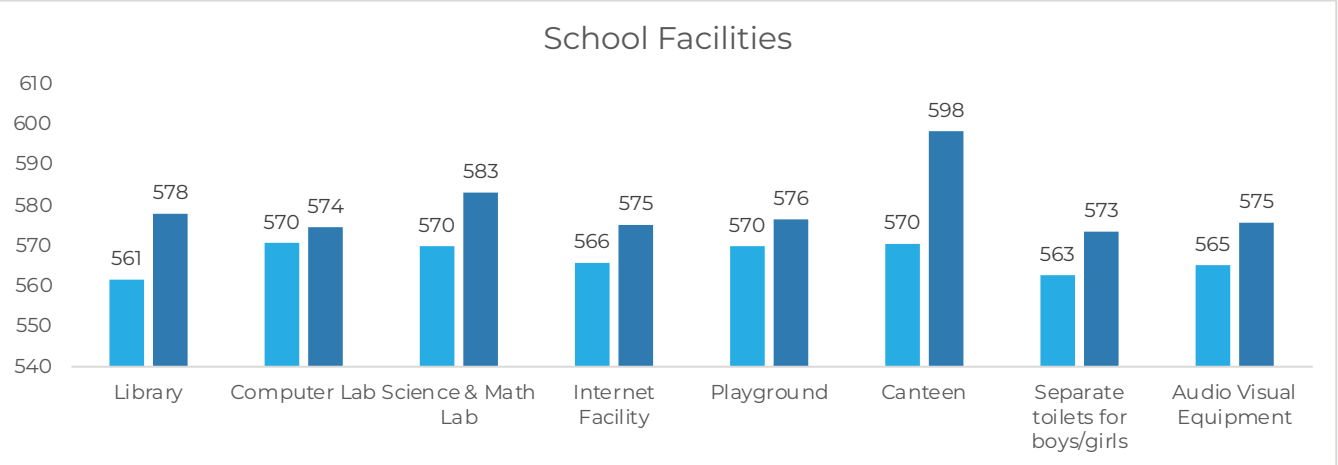


Figure 77: S3 mathematics mean scale score by school facilities



Learner absenteeism was a clear negative predictor in S3 mathematics, where higher absence levels significantly reduced performance. Parental participation showed a positive association in S3 mathematics, suggesting that engagement from families remains important even at higher grade levels.

Although not significant in P3 and P6, the S3 finding highlights that continued parental involvement may buffer learning gaps during adolescence, when learners face more complex mathematical demands.

7.2.3. Factors associated with science performance

In S3 Science, the stepwise regression also highlighted both enabling and constraining influences. School infrastructure variables, particularly access to libraries and science/math's laboratories, showed positive associations with science performance, reinforcing the importance of subject-specific facilities. Urban schools again outperformed rural ones, echoing the patterns seen in English and mathematics. However, absenteeism once more had a strong negative influence, underscoring its pervasive influence across subjects. Schools having learners with disabilities were linked with lower science scores, similar to the English and Maths patterns, suggesting systemic barriers in delivering effective science instruction within inclusive settings.

The following figures illustrate these patterns showing how mean scores varied across some of the variables.

Impact of class size in science was similar to mathematics and English, and the same was the trend for learners from low-income backgrounds who performed poorer than their counterparts.

Figure 78: S3 science mean scale score by class size

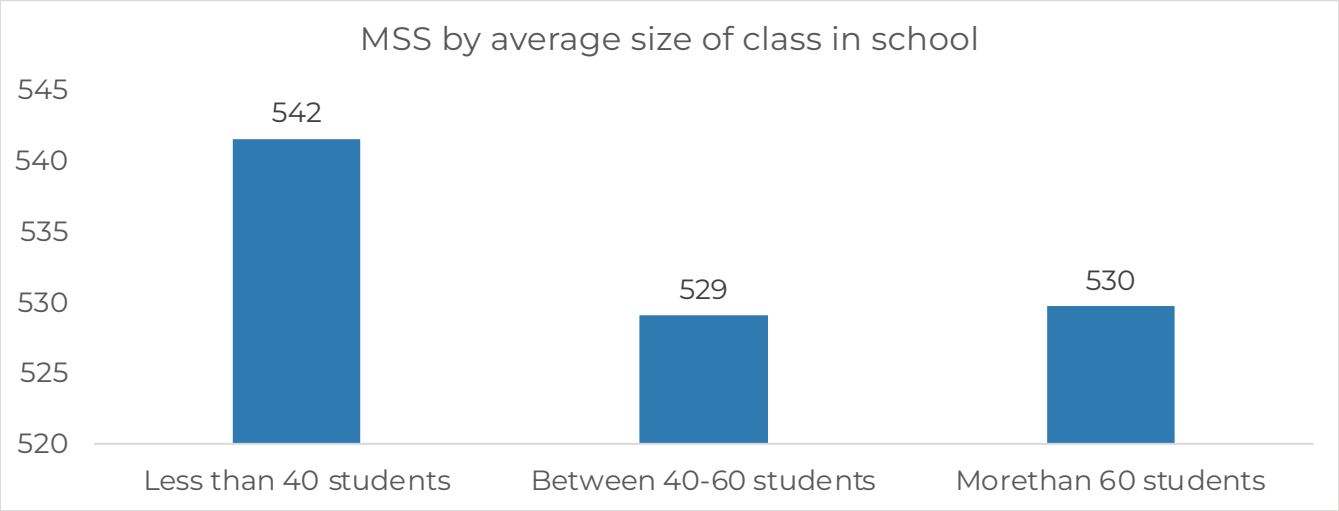
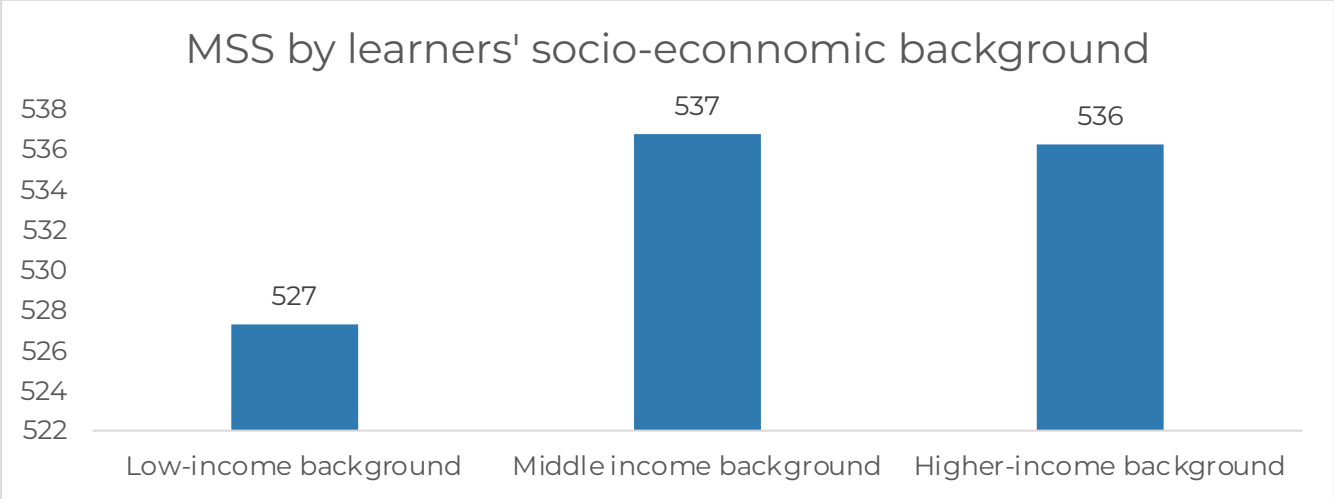
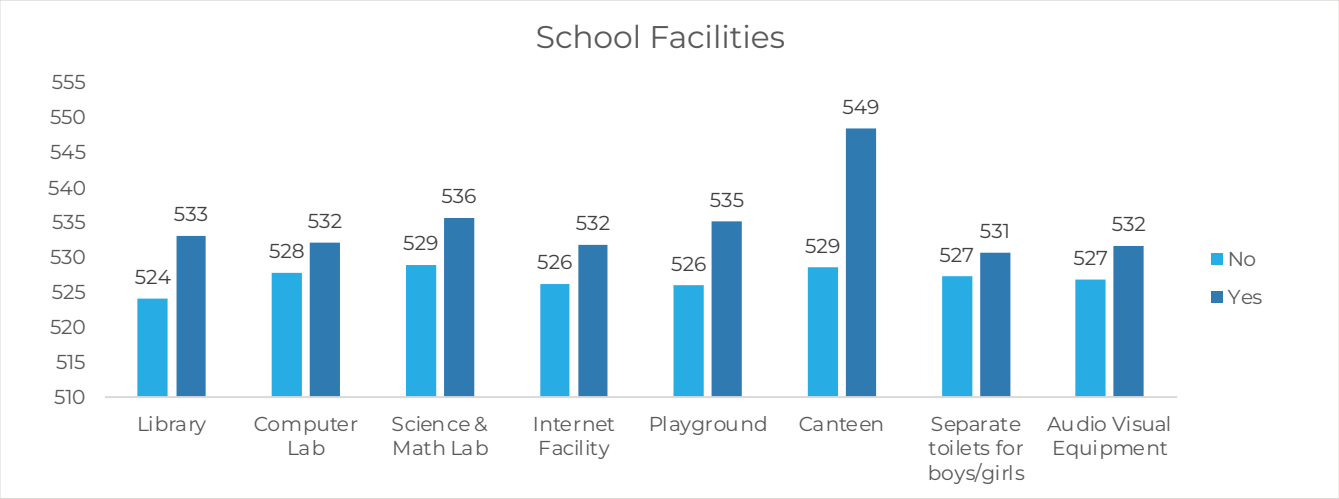


Figure 79: S3 science mean scale score by learners' socio-economic background



As the figure below indicates, learners with access to better school facilities performed better in S3 science. The biggest improvements in performance were seen in schools with canteens, libraries and playgrounds.

Figure 80: S3 Science mean scale score by school facilities



These findings emphasise that while limited background variables showed significant effects, certain themes such as the urban–rural divide, absenteeism, parental engagement, and the availability of supportive facilities consistently shape academic achievement. The results point to the importance of strengthening school infrastructure, reducing structural constraints, and promoting inclusive practices to enhance learner performance, particularly as learners progress into higher grades.

7.3. Findings from parents' questionnaire

In this section, we examined how background variables from the parent questionnaire are related to learner academic performance across grades and subjects. The methodology adopted to form indices was same as other questionnaires. The analysis used the learner scale scores as the dependent variables and their parents' questionnaire indices as the independent variables.

7.3.1. Factors associated with English performance

The results from analysis of parents' questionnaire for English consistently revealed that:

- household digital resources, parental education, and socio-economic stability are predictor of better language learning, irrespective of grade level.
- certain household vulnerabilities particularly farming-based livelihoods and illness-related absences are linked with lower achievement.

For P3 learners, access to household computer and television had a positive impact on English performance, which may be a mixed effect of digital exposure supporting foundational literacy skills even at an early stage and parental socioeconomic status. Parental occupation as farming emerged as a significant negative predictor, potentially reflecting socio-economic constraints and limited access to enriching learning environments.

By P6 level, the influence of socio-economic resources becomes even more pronounced. Children from salaried households performed significantly better, signalling the advantages associated with stable income, structured routines, and better learning support at home. Importantly, teacher–parent discussions and the time learners spent on homework were linked with improved outcomes, pointing to the role of active parental involvement and structured learning habits.

At the secondary level, the relationship between household conditions and performance becomes more complex. Farming households showed the strongest negative association (regression coefficient = –20.04), highlighting structural disadvantages that may persist or widen over time. Digital and material resources remained significant, and ownership of private transport strongly predicted better outcomes, underscoring the cumulative benefits of socio-economic capital.

As expected, absence due to illness had a negative effect due to disruptions in continuity of learning. Surprisingly, longer time spent on homework showed a negative relationship, which may indicate that extended homework hours may be under suboptimal study conditions at home. Also, that time spent does not always indicate quality of the time.

The findings of regression analysis with the significant parent's background variables associated with English performance are given in the table below.

Table 56: Parents' background variables with significant impact on English performance

Variable	P3 English	P6 English	S3 English
Computer at home	23.52	NS	26.58
Television at home	8.57	13.09	17.19
Parent education – Higher education	8.67	8.18	NS
Parents job – Salaried	NS	19.15	NS
Father occupation – Farmer	–8.69	NS	–20.04
Teacher discusses performance with parents	NS	7.10	NS
Time spent on homework	NS	2.68	–1.92
Absence due to illness	NS	NS	–7.92
Two-wheeler/Car at home	NS	NS	12.24

7.3.2. Factors associated with mathematics performance

Like English, analyses for mathematics also revealed a clear pattern showing:

A. household socio-economic conditions, access to learning resources, and parental education strongly shape mathematical learning
B. indicators of household vulnerability especially farming-based livelihoods are consistently linked to lower achievement.

Across all grades, mathematics performance appears particularly sensitive to structural disadvantage and the availability of cognitively enriching resources at home. And they may be interlinked, as socio-economic hardship constrains early learning by limiting access to household resources that can meaningfully support foundational learning.

At the P3 level, learners from farmer households showed significantly lower mathematics performance suggesting that economic vulnerability and unstable income conditions may limit access to learning materials or create stressful home environments that impact early numeracy development. The presence of household media resources such as television and mobile phones was positively associated with higher scores. These resources may indirectly support early numeracy through exposure to more language, informational content, or educational programming.

By P6, the influence of the home environment becomes more differentiated. Household television ownership showed a strong negative association with performance (regression coefficient = –17.80), possibly reflecting excessive screen time or low-quality content. Learners who never read at home also performed worse, underscoring the importance of regular literacy engagement for mathematics learning. Indicators of structural stability were linked to better outcomes. Owning the family home and having parents with higher education both supported higher performance, and salaried employment showed a strong positive effect (regression coefficient = 21.71). The positive coefficient for father's occupation as a farmer (regression coefficient = 16.63) may reflect model-specific suppression effects or a subgroup where parental support compensates for economic constraints.

At the secondary level, access to a computer at home is the strongest predictor of higher mathematics performance. Learners from farmer households and girls continue to show clear disadvantages, indicating that socio-economic constraints and gender barriers intensify as mathematics becomes more complex. Television ownership shows a modest positive effect, while parents regularly receiving report cards is linked with better outcomes, underscoring the value of parental monitoring and consistent home–school communication.

Table 57: Parents' background variables in P3 mathematics performance

Variable	P3 Mathematics	P6 Mathematics	S3 Mathematics
Father occupation – Farmer	–9.04	16.63	–11.86
Television at home	7.35	–17.80	9.99
Mobile phone at home	6.57	NS	NS
Never read at home	NS	–10.48	NS
Own house	NS	10.52	NS
Parent education – Higher education	NS	13.94	NS
Parents job – Salaried	NS	21.71	NS
Computer at home	NS	NS	25.97
Parent gender – Female	NS	NS	–6.02
Parents received report cards	NS	NS	11.97

7.3.3. Factors associated with science performance

Performance was higher among learners from households with a computer. Overall, household learning resources and specific family or contextual factors were positively associated with learner achievement, while socio-economic disadvantages and illness-related absences had a negative impact. The regression analysis results identifying the significant parent's background variables associated with S3 Science performance are given in the table below.

Table 58: Significant parents' background variables in S3 Science performance

Variables	Regression coefficient
Computer at home	18.687
Father Occupation - Farmer	-10.643
Parent-married	6.418
School Absence reason- Illness	-5.766

7.4. Findings from FGDs and key stakeholder interviews

7.4.1. Focus group discussions

The focus group discussions (FGDs) aimed to explore learner-level, classroom-level, school-level factors or sociodemographic/family and background factors that are associated with learner performance. The participants were a heterogeneous group of educators with representation from various provinces and districts of Rwanda. The highlights from the discussions have been described under the following overarching themes

Overview of the education system of Rwanda

An education system is made up of several interconnected components, including curriculum, instructional methods, assessment. It is shaped by learners, teachers, parents and community. They function together within a structured framework of policies to achieve educational objectives. Participants' reflection highlighted both the strengths of current reforms and persistent implementation gaps that shape daily teaching and learning.

Curriculum

Rwanda has been implementing a competency-based curriculum (CBC) across primary and secondary levels since 2016. Most participants (n=9) described it as well designed, learner-centred, and focused on developing critical thinking, problem-solving, and behavioural skills. One teacher explained:

"The curriculum is essentially competency-based. It is learner-centred, which gives room to children to do activities and engage in discussions. The focus is on critical thinking, problem-solving, and behaviour change. This proves to be transformational."

At the same time, a larger group of educators (n=14) highlighted challenges related to the extensive content load, which they felt placed pressure on both teachers and learners given the limited instructional time. As one participant noted:

"The content is too extensive, making it difficult to cover everything within the given time. This puts pressure on both teachers and learners."

A smaller group (n=5) emphasised that shortages of textbooks and other critical resources limit the effective delivery of the CBC. Several educators suggested that the curriculum should now be revised to address these implementation challenges. One participant remarked:

"The Competency-Based Curriculum is well designed; however, it is now time to revise it based on the challenges identified. For example, the content should be reduced we have much content and limited time."

While CBC is widely recognised as a strong and forward-looking framework, teachers felt that its potential is constrained by heavy content and insufficient resources. Addressing these issues would strengthen its impact in classrooms.

Assessments

Assessment was described as a central part of classroom practices. Participants (n=7) reported conducting assessments at multiple points including daily, weekly, monthly, and at the end of units, terms, and the school year. One teacher explained,

"We use the daily assessment during the teaching and learning process, then end unit assessment, term assessments and finally end year assessment."

A smaller group (n=3) emphasised that results help track learner progress and inform targeted support. As one participant shared,

"We use assessment results to track learners' progress. This data helps us design remedial activities to support learners based on their specific needs."

At the same time, some participants expressed concern that national-level assessments are often too advanced compared to classroom teaching and learner learning levels. This was seen as a misalignment that reduces their usefulness.

Teacher motivation and professional development

Teachers consistently expressed a strong sense of purpose and commitment to their role, describing teaching as both a professional responsibility and a personal calling. Many spoke about the satisfaction they derive from supporting learners' growth and contributing to their communities, noting that this intrinsic motivation sustains their efforts even in challenging classroom contexts. At the same time, teachers emphasised that motivation is closely linked to the support they receive, including opportunities for professional learning, access to resources, and recognition of their work within the school system. Where such support exists, teachers reported greater confidence and willingness to experiment with new pedagogical approaches; where it is limited, they described feeling constrained despite their commitment to learners.

Supporting diverse learning needs

Teachers described a range of methods they use to support diverse learning needs and keep learners engaged. A common view was that involving learners actively in the learning process helps sustain their interest and motivation. As one participant put it,

"The best way to support learners is by encouraging them to actively participate in the teaching and learning process. When learners feel that they are not involved or engaged, they tend to give up and lose interest in the lesson."

Many participants (n=8) highlighted the use of peer collaboration through group work and presentations, which allows learners at different levels to learn from one another. Teachers also reported using practical aids and play-based approaches to make learning more accessible. One teacher explained,

"We use a group work approach to support our learners. Some learners take longer to understand certain skills... For those who struggle the most, I use various teaching aids. For example, when teaching mathematics, I use stones to demonstrate addition and subtraction. I also apply a play-based approach to make learning more engaging and effective."

Other strategies included scaffolding methods such as the gradual release of responsibility ('I do, we do, you do'), which helped teachers structure learning and guide learners toward independence. A smaller group emphasised the importance of remedial sessions organised by the Rwanda Education Board.

Professional development

Professional development opportunities available through the Rwanda Education Board (REB), the National Examination and School Inspection Authority (NESA), and Non-Governmental Organisations (NGOs), school-based CPD, and Communities of Practice were valued for improving pedagogy and subject knowledge. However, teachers highlighted uneven access, especially in science, ICT, and English language training and they called for more regular, equitable, and needs-based capacity building aligned with curriculum expectations.

Teachers highlighted these as valuable avenues for professional growth. As one participant explained,

"We receive training organised by REB and its partners, and we also participate in weekly CPD activities such as Communities of Practice, where we share best practices and teaching skills. This school-based CPD has been very helpful to us."

Many participants (n=9) spoke about their passion for teaching and their commitment to shaping future citizens. One teacher remarked,

"I became a teacher because I love the profession. Teaching is a noble career, and I enjoy working with children because I believe they are the future leaders and the most important members of society."

Others (n=5) shared that their decision to enter the profession was inspired by teachers they admired during their own schooling.

A group of participants (n=6) reported limited or no external support, with training opportunities unevenly distributed across schools. One teacher emphasised,

"At my school, we do not receive any external support. The only support we get is when the Deputy Head Teacher in charge of studies visits our classrooms for inspection. However, we urgently need training in science subjects such as physics and chemistry, as many of our teachers are new and lack experience."

Teachers agreed that regular and equitable capacity building in areas such as ICT, English language (as the medium of instruction), subject-specific Community of Practices (CoPs), and development of teaching-learning materials would be crucial for improving curriculum implementation and enhancing teaching quality across the system.

Parental involvement and community support

External support systems

Teachers emphasised that parental and community involvement is essential for creating a supportive learning environment that extends beyond the classroom. Such engagement was seen to contribute to academic achievement, social development, and learner well-being.

Participants (n=6) described ways in which parents and communities support schools and learners, including providing basic learning materials, monitoring progress through school visits, and contributing to school projects. One participant explained,

"Parents are involved in their children's education by providing necessary learning materials such as notebooks and pens. They also visit the school to meet with teachers and monitor their children's academic progress."

Many participants (n=8) stressed that lack of parental support remains a significant issue, linked to household responsibilities and low literacy levels. Children are often burdened with chores at home, while parents are unable to assist with English-based learning.
Despite these challenges, teachers noted that community leaders play an important role in encouraging participation. Mobilising parents to attend assemblies and contribute to school activities helps bridge some of the gaps.

Perception of current learning levels

Teachers generally described learner performance in Rwandan schools as average, with a small proportion of high achievers alongside struggling learners. As one participant observed,

"Children in Rwandan schools perform average. There are a few high achievers and geniuses, but they are very less in number. Also, some slow learners in the class struggle to perform. The majority of learners are of average ability."

Several participants noted the wide variation in performance within the same classroom, with some learners excelling while others lag behind significantly. These disparities were attributed to differences in early learning experiences, particularly at the pre-primary level. Learners from private nursery schools were perceived to start with stronger foundational skills than those from public nurseries or no pre-primary background.

Contextual and socioeconomic factors were also highlighted as important determinants of learning levels. Teachers working in rural schools explained that household responsibilities often limit the time and energy learners can devote to studies. One teacher reflected,

"When learners go home, many of them are unable to complete their homework because they are given other responsibilities or household chores by their parents. This limits the time and energy they can dedicate to their studies."

Another dimension raised by participants (n=4) was the difference between day and boarding schools. Boarding schools were seen as better resourced, particularly for science subjects, and supported by additional staff such as matrons and discipline teachers who help guide learners. In contrast, day school learners often face more challenges at home, including economic pressures.

This may also be seen as an impact of home environment. Participants (n=8) explained that domestic conflicts, lack of parental involvement, and unstable household conditions often undermine children's ability to concentrate on studies or attend school regularly. One teacher observed,

"... conflicts within the home environment negatively affect the learners' learning."

In addition, teachers linked domestic challenges to absenteeism, reporting that it was common to find large numbers of learners missing class on any given day.

Challenges and areas of improvement

Teachers consistently highlighted the shortage of instructional materials as a major challenge affecting classroom teaching and learning. Participants (n=15) reported that textbooks and basic learning supplies were often inadequate, leaving many learners without the resources they needed. One teacher explained,

"The main challenge we face is the lack of textbooks. For example, in our class, we have only 3 books available for all learners."

Alongside the shortage of textbooks, teachers noted gaps in teaching aids aligned with CBC. They are often expected to develop their own materials but lack the necessary training to do so effectively. A participant remarked,

"We also face the challenge of not having teaching aids aligned with the Competency-Based Curriculum. While we are expected to create our own, most of us have not received proper training on how to do so effectively."

Concerns were also raised about science education, with some participants stressing the absence of laboratory equipment. This was seen as particularly problematic given that national assessments require learners to demonstrate practical skills.
Status of teacher capacity

Teachers were central to the conversation on education in Rwanda. Participants (n=5) mentioned about that Rwanda has an established system for training of pre-service and in-service teachers. They also mentioned about English language training.
One teacher said,

"To become a teacher in Rwanda, one must attend a teacher training college, which provides a strong foundation. There are 2 main forms of capacity building: pre-service training for those preparing to become teachers, and in-service training for those already teaching."

Participants (n=5) also mentioned about continuous professional development framework in Rwanda. One participant said,

"The CPD includes subject-based training, which focuses on content mastery, and methodology-based training, which emphasises effective teaching strategies, for example, how to teach mathematics."

Participants (n=4) also talked about training on Competency-based Learning (CBL) and also shared how teacher mentors help their colleagues gain new skills. Participants also mentioned about activity-oriented teacher professional development, the 5E model (Engage, Explore, Explain, Elaborate, Evaluate) of teacher development, and blended-learning in teacher professional development.

A few participants reported that Teaching and Learning Materials (TLMs) are not adequate. However, one participant said,

"Teaching and Learning Materials (TLMs) are closely aligned with the national curriculum, which clearly outlines learning objectives and outcomes. Each subject comes with a teacher's guide and a learner textbook, which form the core of the TLMs."

7.4.2. Key stakeholders' interviews

The insights from the interviews conducted with key stakeholders during LARS 2025 have been described below.

Educational progress and learning gaps

Stakeholders recognised Rwanda's substantial achievements in access and enrolment, particularly at the primary level. However, the secondary enrolment rates continue to remain low. One participant said,

"While net enrolment rates at primary level have remained above 90%, secondary level enrolment has struggled, never exceeding 40%. Currently, the upper secondary enrolment remains especially low, with figures around 29%. This does not mean children of secondary school age are out of school; many are still enrolled in primary due to high repetition and dropout rates as they progress."

While access has increased, learning outcomes remain a concern particularly in English language achievement. One participant said,

"However, English remains a significant challenge, especially following the shift in the national language of instruction. Many teachers are still struggling to adapt to teaching in English, which affects learners' comprehension and overall learning outcomes. Numeracy levels are average, showing moderate progress but with room for improvement across the system."

Policy foundations and system reforms

Participants emphasised Rwanda's coherent policy architecture serve as the foundation to attain high-quality education. Participants (n=10) spoke about Vision 2050 and National Strategy for Transformation that guide the sector plans. The general consensus was that there was alignment across sector plans, teacher training and budgeting. The quotes below illustrate this,

"Unlike some countries where sector plans and budgets may not be consistently aligned or developed over the medium term, Rwanda maintains a consistent approach with these frameworks.

There are comprehensive frameworks supporting this, including a detailed assessment framework, an extensive inspection framework, and policies covering other areas such as digital education."

Key reforms include the shift to competency-based education, emphasis on Technical and Vocational Education and Training (TVET), and structured school accountability.

One participant said,

"One of the key developments is the shift from rote learning to competency-based education, beginning at the primary level. This transition emphasises skills such as critical thinking, collaboration, and problem-solving."

System strengths: Government commitment, data use and ICT integration
Participants reported various strengths of the Rwandan education system that they believe are driving progress within the education system.

These include improvement in access to schooling; enhancement of reading fluency of learners; data-based decision making; emphasis on early child education; enhanced implementation of policies; and focus on early childhood education and foundational learning. Free meals for learners; focus on gender inclusion; introduction of ICT in education, strong commitment from government; and supportive relationships among teachers and learners were also listed for contributing to improvements in the education system.

Participants (n=3) identified critical role of government's commitment and ICT in education in advancing Rwandan's education system. The participants felt the leadership is committed which is reflected in the policy and educational initiatives.

One participant said,

"Rwanda demonstrates strong government commitment to improving its education sector. This commitment is reflected in the comprehensive policy framework guiding education initiatives at the national level."

The participants also highlighted that Rwanda has high ICT penetration on schools including building infrastructure and digital skills among teachers.
One participant said,

"Rwanda is also prioritising the integration of information and communication technologies (ICT) in schools. Key initiatives include the establishment of smart classrooms in many primary schools and the One Laptop Per Child program. These policies aim to enhance digital literacy and provide learners with the tools and exposure needed for a technology-driven world."

These were viewed as enabling factors for SDG 4 progress, especially in access, gender parity, and inclusive practices (n=7). One participant said,

"Rwanda has made significant progress in meeting the Sustainable Development Goals (SDG) related to quality and equity in education. The country has achieved high access rates, particularly in early grades and primary education. Equity indicators also show positive trends, with a substantial number of girls attending school alongside boys, reflecting improved gender parity in education."

They have highlighted some of the reasons for the progress including 'free schooling from pre-primary through secondary levels', 'school feeding programs ensuring most learners receive meals', and 'focus on curriculum content, teaching and learning materials, teacher training, and competence-based assessment.'

Participants (n=5) also particularly noted progress in equity. One participant said

"More girls are attending school now compared to earlier times. Traditionally, cultural beliefs in Rwanda discouraged girls from attending school, expecting them to stay at home and perform domestic tasks. But with ongoing education and awareness campaigns, attitudes have changed significantly."

Participants also expressed that the education system in Rwanda provides both special and inclusive schools to advance equity, teachers are trained in inclusive methods, the Accessible Digital Textbook project is a major step, double capitation grants for teaching and learning material, and awareness campaigns have all helped to advance equity in Rwanda.

Participant (n=5) also highlighted the challenges towards achieving the goals. One participant said, 'For competency-based education to be truly effective, class sizes need to be smaller, or there must be more teachers in the classroom.'

Impactful programs

When participants were asked about programs that they think are most impactful, participants (n=5) mentioned the school feeding program. One participant said,

"The school feeding program is considered the most impactful because it directly addresses learner hunger, a major barrier to attendance and learning. By providing meals, the program motivates children to attend school regularly and enhances their ability to focus and perform academically."

Four participants (n=4) said that teacher development was supporting educational system strengthening and an equal number of participants appreciated ICT integration in education as it is important to equip learners with technology in today's world.
Participants felt that programs in basic education, Continuous Assessment Management Information System (CAMIS), competency-based education, education for all, inclusive education, and remedial education were also making a difference to teaching and learning in Rwanda's education system. However, one participant said,

"Many of these programs have not yet undergone thorough evaluation, making it difficult to definitively assess their impact. Programs such as the World Bank-supported Quality Basic Education Project has been evaluated, and reports from such evaluations provide more robust insights into program effectiveness. Therefore, for a clear understanding of program outcomes, it is recommended to consult official evaluation reports."
Key challenges in system delivery

Participants also shared few challenges in the programs. One participant mentioned 'gaining deeper insights into how learners are actually learning' is still a challenge. Along with that, the participant also mentioned that parent engagement needs to be strengthened to improve children's academic performance.

Across interviews, challenges clustered around 4 areas:

- **Infrastructure and overcrowding:** Large class sizes with 60+ learners, inadequate classrooms, limited electricity and internet, and insufficient textbook availability. One participant highlighted, **"Large class sizes make it difficult for teachers to provide individualised attention and maintain effective teaching activities, which negatively impacts the quality of education and learner outcomes."** Another participant said, 'Efforts such as introducing double-shift schooling have aimed to reduce class sizes, but this approach shortens instructional time, which is not an ideal solution.'

- **Teacher capacity and language transition:** A high proportion of unqualified teachers recruited post-COVID, uneven access to Continuous Professional Development, and ongoing difficulties teaching in English. One participant talked about the changes since COVID-19. One participant said, **"After COVID, due to a surge in enrolment, the government had to recruit around 24,000 unqualified teachers in basic education. About 30% of the teaching force. This has had implications on the quality of teaching, although refresher training efforts are ongoing."**

Another participant mentioned about a teacher training program **"The government is addressing the issue of untrained or underqualified teachers through a targeted one-year training program. These teachers receive training from experienced instructors from various universities and colleges of education. The aim is to ensure that all teachers meet professional standards and are equipped to support learners effectively."**

- **Equity and inclusion:** Persistent barriers for rural children, children with disabilities, and areas with low parental engagement or poverty constraints.

- **Program implementation issues:** Rural ICT constraints, inconsistent data entry, limited evaluation of ongoing programs, and challenges with blended learning and inclusive education continue to impact program delivery. One participant mentioned, 'While ICT is being integrated into educational programs, limited internet access in rural areas, particularly where electricity infrastructure is weak could continue to affect it outcomes".

Expectation from LARS

Participants shared their expectations from LARS. Participants (n=5) wanted accurate, reliable, and detailed information from LARS.

One participant said,

"LARS provide critical insight into how the education system is performing—particularly with respect to learners' competencies. These assessments are among the most reliable ways to understand learner performance trends over time and evaluate the overall effectiveness of the system."

Participants expected LARS 2025 to provide:

- detailed data showing learner progress over time and revealing gaps in learning outcomes
- disaggregated information across districts, subjects, and gender to support targeted interventions
- performance over previous years.

Additionally, they emphasised the value of contextual analysis to understand which groups of learners are excelling or struggling and the factors contributing to these differences.

One participant added,

"In many of those countries, class sizes are much smaller often fewer than 30 learners per class. In contrast, our teachers are often managing classrooms with 60 or more learners. It is, therefore, not reasonable to compare the performance of a teacher handling 60 learners with one teaching just 25. The contexts are very different, and such comparisons do not reflect the realities on the ground. That's why collecting detailed background data during these assessments is so important. This data helps us understand the learning environment."

Another one said,

"The expectation is that current and future LARS results will provide outcomes that can be confidently used for decision-making...Going forward, it is important that findings are disseminated transparently and in full, to ensure their usefulness for system improvement."

Participants (n=2) also expressed their expectation that LARS should help them understand progress in English. One participant mentioned, 'As English has been a known area of struggle both for learners and teachers there is a keen interest in observing progress in this subject.'

Participants (n=2) also expect that the LARS data should help them in decision making in system improvement. They said that these insights can enable informed decisions regarding teacher training, curriculum adjustments, and assessment strategies.' Participants expect LARS to help them 'determine whether learners are aligned with the profile outlined in our curriculum' and 'measure fluency'.

Participants (n=8) explicitly mentioned that the LARS data will be useful in planning targeted interventions. For instance, the 'disaggregated analysis examining differences across districts, subjects, and teacher composition will help link resources to learning outcomes and guide targeted interventions.'

Participants (n=3) also said that the data will help in teaching and learning. One participant said,

"The best use case for this data is to serve as a diagnostic tool for school leaders and teachers. It acts as a mirror, reflecting the school's current performance and highlighting specific areas that require improvement. This enables educators to focus their efforts strategically on the weak points, tailor their teaching approaches, and set targeted goals to enhance learner learning outcomes effectively."

However, one participant also mentioned about a challenge with LARS administration:

"One of the key challenges we observed during the implementation of LARS is its timing. The assessment period often overlaps with the national examinations, which leads to considerable disruptions and logistical complications at the school level. There is a lot of reshuffling and rearrangement required to accommodate both assessments, which can overwhelm both teachers and administrators."

7.5. Summary

Learning outcomes are influenced by a wide range of home, school, and individual-level conditions. This analysis brings together quantitative findings from the learner, parent and head teacher questionnaires with qualitative insights from teachers and stakeholders to identify consistent patterns across grades and subjects.

Learner questionnaire results reveal several recurring themes

- Parental background and work status are important. Higher parental education and full-time employment, particularly of mothers, are repeatedly linked with better outcomes.
- Home resources matter. Access to books, electricity, internet, mobile phones and television is frequently associated with higher scores, especially for English in P6 and S3.

- Learner attitudes relate to performance. Greater liking for reading and higher confidence in learning are positive in the early grades, while self-reported reading difficulty is negatively related to English and sometimes inversely related to mathematics and science in S3.
- Language environment and access barriers influence learning. Longer commute times are consistently associated with lower scores. In P3, use of Kinyarwanda in class relates to lower English and mathematics performance, while in P6 mathematics it aligns with higher scores, pointing to grade- and subject-specific dynamics.
- Gender patterns diverge by grade and subject. Girls are ahead in P3 English, while in S3 they score lower in English, mathematics and science.

School-level results from the head teacher data show limited but clear associations

Urban location, single-shift operation, internet at school, and the presence of libraries, canteens, playgrounds and laboratories are linked with higher performance. ICT and teacher capacity constraints, as well as absenteeism, are associated with lower outcomes. The presence of learners with disabilities correlates with lower averages at S3, which likely reflects gaps in inclusive support rather than learner potential.

Household characteristics and parental involvement show clear links to learner performance

Across all grades and subjects, the availability of learning resources at home especially computer access consistently emerged as a strong positive predictor of achievement. Parental education and access to television or mobile phones were also positively associated in several models, particularly in English. Conversely, households where the primary occupation was farming were repeatedly associated with lower academic performance, pointing to the enduring impact of socio-economic disadvantage. Indicators of parental engagement, such as discussions about performance and time allocated for homework, showed some positive effects, especially at P6 level.

Insights from teachers and stakeholders echo the quantitative results and add more depth

Participants appreciated the competency-based curriculum and strong policy intent but described everyday constraints that limit impact: large classes limit individual support, shortages of textbooks and science materials, uneven access to electricity and internet, and gaps in teacher preparation for teaching in English. They reported that parental engagement is inconsistent, with household duties and poverty reducing time for study, especially in rural settings.

Teachers value professional development, Communities of Practice, and mentoring, yet coverage is uneven and many new teachers still need targeted training in pedagogy, English, and subject content. Stakeholders highlighted programs that appear most helpful in practice, such as school feeding and teacher training, and stressed the need for smaller classes, better equipped laboratories and libraries, reliable ICT, and stronger support for inclusive education. These accounts align with the statistical findings on the positive role of school facilities, urban location, and parental involvement, and on the negative effects of absenteeism, long commutes, and resource constraints.

8. Performance of learners with special education needs (SEN) in LARS 2025

The Special Needs and Inclusive Education Strategic Plan developed by the Ministry of Education, Rwanda, outlines the country's national objectives and priorities for fostering inclusive education. One of the plan's central goals is to ensure equitable access to education, improve retention rates, and support the successful completion of 12 years of schooling for learners with special educational needs (SEN).

In alignment with this goal, NESA included visually impaired and hearing-impaired learners in the LARS 2025 to gather comparative data on learning achievement between learners with special educational needs and their peers in mainstream schools. The purpose was to gain valuable insights into the effectiveness of inclusive education practices and help inform future policy and program development.

8.1. Participation of SEN learners

The table below presents the names of the selected schools and the number of visually- and hearing-impaired learners currently enrolled in each school.

Table 59: SEN Schools participated in LARS 2025

School Name	Enrolment – P3	Enrolment – P6	Enrolment – Year S3	Number of Visually Impaired learners			Number of Hearing–Impaired learners		
				P3	P6	S3	P3	P6	S3
CJSM NGOMA	0	6	78	0	0	0	0	6	2
G.S ROSE MYSTICA	132	78	78	0	0	0	0	0	0
CENTRE KOMERA	12	5	0	0	0	0	5	4	0
Education institute for blind children Kibeho	16	18	19	16	18	19	0	0	0

G.S. Rose Mystica did not have any learners with visual, or hearing impairments enrolled at the time of the survey, therefore, it was excluded from the survey.

The table below provides the number of learners in 3 schools who took part in LARS 2025.

Table 60: Number of SEN learners participated in LARS 2025

Province	District	School	P3 learners	P6 learners	S3 learners
South	Huye	CJSM NGOMA	NA	7	2
South	Nyaruguru	KIBEHO Education institute for blind children Kibeho	19	21	22
West	Rutsiro	CENTRE KOMERA	5	4	NA
Total			24	32	24

8.2. Test adjustment for SEN learners

The assessment tools originally designed for mainstream learners were adapted in accordance with international accessibility guidelines to ensure inclusivity for visually impaired learners. Experts from ACER played a key role in this process by identifying the items that required adaptation and writing guidelines for Braille conversion.

The table below presents the number of test items that were adapted into Braille across the 3 subjects.

Table 61: Number of items adapted by grade levels and subject areas

Grade	Total number of test items	Number of items adapted in English	Number of items adapted in mathematics	Number of items adapted in science
P3	30	5	10	NA
P6	30	0	4	NA
S3	30	0	7	5

ACER in partnership with Assistive and Inclusive Technology Solutions Ltd. (AITS) administered LARS 2025 in schools catering to SEN learners and ensured that the assessment tools were appropriately adapted for accessibility. Cognitive assessment tools were translated into Braille, enabling visually impaired learners to participate effectively in the survey. Additionally, learner questionnaires were administered in an interview format by trained enumerators to accommodate the diverse needs of SEN learners and ensure accurate data collection. No change was done in the cognitive tools for hearing impaired learners.

The test administration followed a similar process to the test administration for mainstream schools. Detailed guidelines for administering the SEN assessment are provided in LARS administration manual.

8.3. Learning achievement among SEN learners

The number of SEN learners who participated in LARS was small. The survey was conducted in 2 provinces and 3 schools. 90 SEN learners across P3, P6 and S3 participated in the survey, out of which data of 3 learners were not included in the analysis due to technical reasons like duplicate IDs. Due to the small sample size, the results need to be seen as indicative and not as definitive conclusions.

The tables below present the performance of SEN learners in English and mathematics for all 3 grades.

Table 62: Mean scale of score of SEN learners

Subjects	Mean scale score	St. Error				
	P3 (N=22)	P6 (N=31)	S3 (N=24)	P3	P6	S3
English	534.3	540.6	563.6	68	57	71
Mathematics	513.0	533.1	567.2	61	45	69
Science		-	-	466.4		26

8.4. The context of SEN learners

As with the mainstream learners, contextual questionnaires were administered for SEN learners as well as head teachers at SEN schools. The same contextual survey questionnaires were used. An additional questionnaire was developed for teachers at SEN schools and administered.

Learner questionnaire

Most P3 learners had access to electricity, mobile phones and books but very few had access to the internet and even fewer to computers at home. Learners showed a positive attitude towards books and reading in general and felt safe and supported at school.
Most P6 learners had access to electricity, mobile phones, and books at home. Learners showed a positive attitude toward books and reading in general, liked the school environment, and believed teachers were highly supportive.
Twenty-one S3 learners who responded to the questionnaire were 15 and 24 years old. Most had access to electricity and mobile phones at home. In most of the case, mothers had no formal education, and almost half of the respondents' fathers had no formal education. Learners showed a positive attitude toward books and reading in general, felt safe at school, and believed they were well supported.
The findings from the questionnaires are summarised in the table below.

Table 63:Findings from SEN learner questionnaire

Aspect	P3	P6	S3	Observation
Number of respondents	17	29	21	67 learners
Age range	8–19	11–19	15–24	Broad age diversity
Mobile phone access	82%	93%	90%	High across all
Teacher support	Very strong	Very strong	Very strong	Consistently positive
Reading at home (Yes)	100%	93%	100%	Strong habit across grades
Storybook preference (Yes)	94%	93%	100%	Most liked genre
Homework support at home	100%	87%	86%	Slight decline in higher grades
School environment	Very positive	Very positive	Extremely positive	Strong across all

8.4. The context of SEN learners

Teacher questionnaire

SEN schools' teachers were not involved in the focus group discussions with teachers from mainstream schools; a separate questionnaire was shared with them. Seventeen teachers from 3 schools participated in the discussions.

Learning levels and learner needs

Teachers generally observed that learning levels among Rwandan children have improved over the years, especially in urban areas and among learners who start school at the appropriate age. However, disparities remained, particularly between urban and rural schools, and among learners with special needs. Some teachers noted a decline in learning levels compared to previous years, attributing this to low learner motivation and socio-economic challenges.

To support children with diverse learning needs, educators employed a variety of strategies including individualised education plans (IEPs), differentiated instruction, sign language, visual aids, and inclusive classroom practices. Teachers emphasised the importance of ensuring that all learners are actively involved in classroom activities, regardless of their abilities.

Curriculum and teaching methods

Most teachers described their curriculum as competency-based, highlighting its focus on real-world skills such as critical thinking, problem-solving, and communication. They noted that the curriculum encourages learner participation and expression. However, a few respondents felt that the curriculum still lacks full alignment with the needs of learners with disabilities, particularly those with visual or hearing impairments.

To actively engage learners, teachers used learner-centred approaches such as group discussions, question-and-answer sessions, debates, practical activities, and ICT tools. These methods were designed to foster collaboration and deeper understanding among learners. Assessment practices

Assessment was widely used to monitor learner progress and growth. Teachers relied on a mix of formative assessments (e.g., quizzes, classwork, oral questioning) and summative assessments (e.g., end-of-term exams). Some also used continuous assessment to track development over time. The goal was to ensure a balanced evaluation of both academic performance and skill acquisition.

Challenges in teaching

Teachers faced several challenges in delivering quality education. The most frequently cited issues include:

- a lack of teaching and learning materials, especially those adapted for special needs
- overcrowded classrooms, which hinder personalised instruction
- limited training, particularly in specialised areas like sign language
- slow learner motivation and family poverty, which affect attendance and engagement
- inadequate infrastructure, such as insufficient desks and classroom space.

These barriers significantly impact the ability of teachers to meet the diverse needs of their learners.

Parental and community involvement

Parental involvement was generally positive, with many parents contributing by paying school fees, providing learning materials, and attending school meetings. Some also assisted with homework supervision and participated in parent-teacher associations. However, the level of involvement varied, and in some cases, was limited by economic constraints.

Community support was more variable. While some teachers reported receiving assistance from local leaders, organisations, and community members (e.g., through donations of books or school feeding programs), others noted a lack of tangible support.

Professional development and administrative roles

Teachers benefited from continuous professional development (CPD), including government-sponsored training, peer learning, and subject-specific workshops. These opportunities helped them stay updated on best practices and improve their instructional skills.

Most teachers reported minimal administrative responsibilities, though a few were involved in managing school clubs, coordinating parent meetings, or maintaining learner records. These duties generally did not interfere significantly with teaching time.

Recommendations for improvement

Teachers offered several suggestions to enhance the education system:

- adapt the curriculum to better serve learners with disabilities, especially those with visual or hearing impairments
- increase access to teaching aids and inclusive learning materials
- improve infrastructure to reduce overcrowding and create conducive learning environments
- enhance teacher training, particularly in special needs education and inclusive practices
- facilitate job placements closer to teachers' homes to improve work-life balance and retention.

Head teacher questionnaire

Based on the survey responses collected from head teachers at 3 special schools in Rwanda, the following is a comprehensive summary of the findings across key dimensions such as infrastructure, teacher qualifications, learner demographics, challenges faced, and parental involvement.

School infrastructure

The availability of infrastructure varied across the surveyed schools. All 3 schools reported having libraries and separate toilets for boys and girls. Two schools had computer labs, science/math labs, internet facilities, playgrounds, and audio-visual equipment. However, only one school had a canteen, and two had separate toilets for male and female teachers. These results suggest that while basic educational infrastructure is present in most schools, amenities like canteens and gender-specific teacher facilities are less common.

Teacher qualifications

The majority of head teachers reported that their staff held bachelor's degrees (2 out of 3 schools), while one school had teachers with master's or higher degrees. This indicates a relatively strong academic background among teaching staff, which is promising for the quality of instruction. However, the limited number of advanced degrees may point to a need for further professional development opportunities.

Learner demographics

The learner population in these special schools predominantly came from low-income backgrounds, as reported by all 3 schools. The schools also catered to a significant number of learners with disabilities, totalling 403 across the 3 institutions. Additionally, there were 22 orphans and 5 learners affected by HIV/AIDS. These figures highlight the socio-economic and health-related vulnerabilities of learners, underscoring the importance of inclusive and supportive educational environments.

Teacher-learner ratios

The reported teacher-learner ratios varied significantly. One school had a ratio of 1:7, another reported a split ratio of 1:20 for primary and 1:15 for secondary, and the third mentioned 7 learners per teacher. These ratios suggest relatively small class sizes, which are beneficial for individualised attention, especially in special education settings.

Parental involvement

Parental engagement showed mixed results. Attendance at parent-teacher meetings was notably high, with all 3 schools reporting that more than 50% of parents participated. In contrast, academic volunteering in classrooms was minimal, with only one school reporting up to 25% participation. Volunteering in administrative or infrastructural roles was absent across all schools. Participation in cultural, sports, or social events was more balanced, with one school each reporting 25%, 25-50%, and 50% involvement. These findings suggest that while parents are engaged in formal school interactions, their involvement in day-to-day school activities remains limited.

Key insights and recommendations

A. **Infrastructure gaps:** While core facilities were generally available, amenities such as canteens and gender-specific teacher facilities were lacking. Investment in these areas could improve staff and learner well-being.

B. **Teacher development:** Having more teachers with bachelor's degrees is encouraging, but upskilling through postgraduate education and training could further enhance teaching quality.

C. **Support for vulnerable learners:** The high number of learners with disabilities and those from disadvantaged backgrounds calls for targeted support services, including counselling, health care, and specialised learning resources.

D. **Standardisation of data:** Discrepancies in how data (e.g., teacher-learner ratios) were reported suggest the need for clearer guidelines and standardised formats in future surveys.

E. **Enhancing parental engagement:** Schools could benefit from strategies to increase parental involvement beyond meetings, such as volunteer programs and community-building events.

8.5. Summary

Visually impaired and hearing-impaired learners were included in LARS 2025, in order to gather valuable insights into the effectiveness of inclusive education practices and help inform future policy and program development.

The cognitive tools were adapted for the visually impaired learners and translated into a braille version. LARS 2025 uses separate scales for each subject and grade. Scores for SEN learners are reported on the same scales as those used for all Rwandan learners. The results showed means higher than national means in general, but extreme variability, which combined with the small number of learners in the assessment, makes comparisons a challenge. These findings are to be used as indicative only and to be paired with contextual findings.

P3 English, P3 Mathematics, P6 Mathematics, and S3 English show meaningful to large positive differences for SEN learners (0.65–0.92 SD); whereas P6 English (−0.46 SD) and S3 Science (−1.32 SD) are below the national mean.

The learner questionnaires reveal consistent patterns in learner experiences, access to resources, and perceptions of school environments. Most learners had access to electricity, mobile phones and books at home. Learners also reported strong teacher support, positive classroom environments, and a general enthusiasm for reading, particularly storybooks. Mothers of most S3 learners had no formal education and almost half the respondents' fathers have no formal education.

The teacher questionnaire, completed by 17 educators from 3 special schools, highlighted both progress and challenges in inclusive education. Teachers noted improvements in learning levels, especially in urban areas, but disparities persist—particularly for learners with special needs. Strategies like individualised education plans, visual aids, and inclusive practices were commonly used.

Key challenges include a lack of adapted materials, overcrowded classrooms, limited training in special needs education, and socio-economic barriers affecting learner engagement. Teachers benefited from continuous professional development and generally have minimal administrative burdens.

All schools had libraries and gender-specific toilets, but only 2 had internet and science labs, and just one had a canteen. Most teachers held bachelor's degrees, with limited postgraduate qualifications. Learners largely came from low-income backgrounds, with 403 learners having disabilities, 22 orphans, and 5 affected by HIV/AIDS.

Teacher-learner ratios were favourable, supporting individualised attention. Parental involvement was high in meetings but low in classroom volunteering. Recommendations included improving infrastructure, expanding teacher training, enhancing support for vulnerable learners, and standardising data collection.

9. Key findings and recommendations from LARS 2025

This chapter summarises the key findings from LARS 2025 and provides recommendations based on those findings. The key findings address the research questions discussed in Section 2.1.1. (Design of LARS). They focus on how Rwandan learners are performing in the subjects assessed in P3, P6 and S3. They also identify differences in learning outcomes among different sub-groups of learners such as gender, urban-rural location, school type, disability status, etc. Further, they highlight contextual factors that are significantly associated with learner achievement based on information collected from the learners, teachers, parents, head teachers and other stakeholders.

The chapter also provides recommendations to reduce learning gaps and accelerate progress towards equitable and quality education for Rwandan learners. Further, some recommendations are included that are intended to ensure more effective and efficient implementation of LARS in future cycles.

9.1. Key findings and recommendations for minimising learning gaps

Finding 1: More learners meet curricular expectations as the grade levels increase

Across mathematics and English, there was improvement in performance by learners as they moved up grade levels. The improvement was visible in the proportion of learners who met or exceeded curricular expectations for the grade level.

In English, only 47% of learners were able to meet curricular expectations but the number was more than 60% in P6 (70%) and S3 (64%). Similarly, in mathematics, nearly 63% of learners met or exceeded grade-level expectations in P3, approximately 69% achieved this benchmark in P6 and in S3, more than 57% did so. In science, the assessment was administered only in S3, and 74.8% learners meet or exceed grade specific curriculum level expectations.

In Kinyarwanda and English, ORF assessments were also conducted with P3 learners. In Kinyarwanda, 49% of learners met the benchmark of reading 35 words a minute when they were presented in isolation. The percentage increased substantially for the same benchmark (reading 35 words a minute) when the words were presented as part of a continuous text with 71% meeting the benchmark. In English, 63% of learners were able to meet the benchmark of reading 30 words a minute when presented as part of a text.

In both Kinyarwanda and English, the lowest percentage of learners met expectations when asked to respond to questions based on the comprehension text they read as part of the ORF at 44% and 24%, respectively.

Although the finding seems encouraging, it is worth exploring if global proficiency levels are aligned to the Rwandan curriculum and to ensure sufficient alignment. This will ensure that the progress in learning is happening at a sufficient pace.

Finding 3: Female learners fall behind as the grade levels increase

The disparity in male and female learner performance at higher levels was borne out by multiple pieces of evidence. Interestingly, the difference was either negligible or female learners outperformed male learners in P3. This disparity is most evident in English.

In all 3 subjects, average performance of male learners was significantly better than female learners at S3. In mathematics, this gap was present in P6, as well. In P3 in both subjects assessed and in P6 English, the difference between male and female learners was not significant.

In English, in S3 68% of male learners met or exceeded expectations and less than 60% of female learners did so, while in P3, the percentages were 45 and 48 for male and female learners, respectively.

In mathematics, there was no significant difference between the performance of male and female learners in P3. However, gender disparities became more pronounced at higher grade levels, particularly in P6 and S3, where a greater proportion of male learners met or exceeded grade-level expectations. Similarly, in science, the proportion of male learners who met expectations was 79% compared to nearly 71% of female learners.

Female learners in higher grades in rural areas have the most significant gaps in performance across subjects suggesting that the gender gap is a larger issue in rural areas.
Recommendation: Developing specific interventions for female learners as they reach higher grades

The findings clearly indicate that female learners perform similar to or better than male learners in P3. However, a gap develops by P6 and grows more substantial by S3. Therefore, it is vital to develop specific interventions that target female learners.

As a first step, it may be important to gather more information about the reasons why this disparity exists. Interventions will need to be planned based on the information gathered. Regular monitoring to understand the effectiveness of the interventions would be vital to address this issue. Additionally, expanding community outreach and awareness efforts to support girls' learning and addressing domestic constraints affecting homework and school attendance would be effective steps.

Finding 4: Difference in performance between sub-groups was prevalent

Different provinces do better at different subjects

Learners in Kigali City and West Province performed better in English, while in mathematics it was West Province and East Province. In S3 science, a higher proportion of learners from East Province were able to meet expectations. In Science and English, learners in North Province show achievement gaps.

Performance across districts is similar to the national average

Most districts show similar performance to the national performance suggesting that the quality of education is equitably distributed across the various districts of Rwanda. The only exception is P6 mathematics.

Districts such as Rutsiro, Nyagatare, and Nyamagabe showed strong performance across levels and different subjects, indicating effective educational practices or resource availability. Districts such as Kirehe, Ruhango, Nyarugenge, and Rulindo may require targeted interventions to improve learner outcomes in specific subjects. Musanze showed high variability in performance, suggesting inconsistent achievement levels among learners.

Urban learners performed better than rural learners in English

Urban learners outperformed better rural learners in English across all 3 grades. However, in mathematics urban learners showed better performance than their rural peers in P3 and rural learners did the same in P6. In S3, the difference was marginal in both science and mathematics.

In English, the percentage of learners who met expectations was higher in urban areas across grades. The difference was more evident when learners who exceed expectations are compared. In S3, for instance, the percentage of learners who exceed expectations in urban areas was 38.4 compared to 20.4 in rural areas.

Recommendation: Enhancing effectiveness of CPD in delivery and assessment competency-based curriculum

There are districts that show consistently good performance across subjects. Further investigation about what factors help achieve this better performance would be an important step in replicating their success in other districts. Focussed research studies, such as positive deviance studies would help identify specific factors that can then be adopted as feasible in other areas.

The improvement in student performance across grades indicates that stronger instructional practices contribute meaningfully to learning outcomes. However, to fully realise the potential of a competency-based curriculum, Continuous Professional Development (CPD) must be more targeted, practical, and classroom-focused.

Enhancing CPD requires moving beyond one-off workshops to sustained, practice-oriented professional learning that equips teachers with skills in differentiated instruction, formative assessment, activity-based teaching, and integrating real-world tasks aligned with competency standards. Structured coaching, peer learning communities, and regular classroom observations with feedback can help ensure that training translates into actual instructional improvements. Strengthening CPD in this way will build teacher confidence, improve pedagogical consistency across grades, and support deeper learner understanding and skill development.

Finding 5: Parental education and employment were strong predictors of learning

Household socio-economic conditions, access to materials and parental education strongly shape learning across all the subjects. Parental background and work status are important. Higher parental education and full-time employment, particularly of mothers, are repeatedly linked with better outcomes.

For instance, in English, learners whose father and mother were both employed full time scored 19 scale score points higher in P3 and 29 points higher in S3 than learners whose parents were not fully employed. In mathematics, mother's full-time employment was associated with higher performance by 10.5 points in P3 and 18.3 points in S3, while father's full-time employment was linked with gains of 7.0 points in P3 and 16.8 points in S3. Educated parents may provide a more literate home environment, better academic support, and place higher value on English learning.

On the contrary, indicators of household vulnerability—especially farming-based livelihoods are consistently linked to lower achievement indicating that such households might require additional support.

Finding 6: Access to resources and digital connectivity are key drivers for English

Across grades, robust access to resources significantly enhanced performance in English. Access to books, electricity, internet, and television consistently increased scores. Internet access at home was positively associated with achievement, reinforcing the role of digital connectivity in providing access to language and learning resources and engagement with schoolwork.

For instance, learners with access to books scored at least 10 scale score points higher in English across grades. Internet access was associated with even larger advantages in English, with learners scoring at least 20 scale score points higher in P3 and S3 English and at least 10 scale score points higher in P6 English compared to those without access. A resource-rich home is a strong enabling factor for language learning. Expanding digital access, particularly in low-income households, can help bridge learning gaps.

Recommendation: Identifying vulnerable households and providing targeted support

It is evident from the LARS 2025 data that a stable home environment that provides the appropriate learning environment and access to resources is an important contributing factor in learning. Further, the data indicates that households with livelihoods that may be seasonal, or irregular might not be able to support learning as well as other households.

Further research into identifying households that are unable to provide adequate support for learning would be essential to understand the type of tailored support that can be provided. A possibility to explore is providing school or community-based resources such as reading rooms or computer labs may help learners with limited resources at home gain the required access.

Finding 7: Language of instruction plays a key role

The findings point to difficulties in learning when there is a mismatch in the language used in the classroom and the official language of instruction, especially in P3. This was true across both English and mathematics.

When Kinyarwanda was used as the language of classroom instruction, learner performance in English declined by 12.8 scale score points in P3, pointing to the challenges posed by language-of-instruction mismatches in acquiring English literacy skills. A similar pattern was observed in mathematics. In P3 mathematics, using Kinyarwanda as the medium of instruction was associated with lower scores by 10.8 scale score points, suggesting early confusion when the instructional language differs from the language of assessment.

However, the pattern shifts in later grades. In P6 mathematics, teacher use of Kinyarwanda in the classroom was associated with improved performance by 4.4 scale score points, indicating that familiar language support may strengthen conceptual understanding as subject content becomes more complex.

This finding requires careful and nuanced interpretation. In lower grades, instruction in the mother tongue is expected to improve learning. The data from LARS 2025 shows that this strategy may not be effective if the official language of instruction is different from the mother tongue.

Recommendation: Providing additional language support

Rwanda has had multiple changes in the language of instruction which may lead to difficulties in transition and lack of availability of materials and trained personnel. Further, young learners often face challenges when navigating multiple languages, especially if the transition to English is abrupt. Therefore, a careful evaluation of the implementation of the language policy would be essential.

As mentioned in previous findings, teachers have expressed a need for additional support in using English for instruction. Effective use of English as the language of instruction seems to require more robust support for teachers in developing English language skills.

Some specific recommendations are outlined below:

- Provide additional English language support to learners and teachers, especially in early grades.
- Review and strengthen the implementation of the language transition policy to ensure age-appropriate strategies, particularly in lower primary.
- Strengthen English language training for teachers and enhance the availability of English language teaching materials.

Finding 8: Accessibility affects learning

Longer commute times are consistently associated with lower scores. Across all 3 subjects longer commute times are associated with lower scores and in most grades, the difference is significant. In English, long commute times in P6 and S3 are associated with lower performance by nearly 7 scale score points, highlighting the role of physical access as learners progress to upper grades. In mathematics, longer school commute time reduces achievement across grades where the relationship is significant, with differences of more than 4 scale score points in P3 and P6.

Recommendation: Improving school proximity

Reducing barriers to attend schools by improving school proximity or providing transportation support, particularly in rural areas is essential and has an immediate impact on achievement across subjects, especially in higher grades. An analysis of school density in relation to population of school-going children might help identify priority areas where additional schools need to be built.

Finding 9: School facilities and class size are important indicators of learning

Across all 3 subjects, school level conditions such as class size, school shifts, and availability of facilities were closely associated with learner performance. Learners in classrooms with fewer than 40 students performed up to 15 scale score points higher than those in classrooms with more than 60 students, a pattern observed across most subjects and grades. Large class sizes likely limit individual attention and reduce opportunities for language practice. Smaller classes appear to create more effective learning conditions for language acquisition. Similarly, in mathematics, smaller classes seem to support foundational and secondary mathematics learning through more personalised attention and manageable instructional environments.

Large class sizes were reported as a major barrier to effective teaching and learning during focus group discussions with teachers, as well. They explained that high numbers of learners in a single classroom limits opportunities for individual attention, reduces the quality of assessment, and puts additional strain on teachers.

Schools with single shifts performed significantly better than schools with multiple shifts in both English and mathematics. Further, learners in schools with facilities such as libraries, canteens, computer, mathematics or science labs, etc. performed substantially better across subjects and grades.

All of these findings indicate the importance of school-level infrastructure in learning. These findings are also reflected in the discussions and interviews conducted with teachers and stakeholders with the positive role of school facilities, and the negative effects resource constraints emphasised.

Recommendation: Rationalizing classroom size to enhance learner engagement

Improving school infrastructure, particularly reducing class size to 40 can impact learning. Interestingly, reducing class size by increasing the number of shifts does not seem to be an effective solution. Therefore, increasing the number of schools would be essential and will have impact learning not only by reducing class size but also reducing commute time to reach schools (see recommendation above). Further, ensuring the availability of basic infrastructure such as libraries, canteens, laboratories, and reliable electricity in all schools will also improve learning.

9.2. Recommendation for next LARS cycles

9.2.1. Recommendation for test development

Some considerations for future test development regarding LARS are listed below.

- Ensure that documentation protocols and procedures are followed for each round of LARS
- Update the set of items for each LARS test to clearly identify items available for future use, items requiring amendment and re-trialling and items to be retired or removed. The information should include item metadata such as key learning area, cognitive level, etc. as well as item statistics.
- Identify any constructs or subconstructs which remain underrepresented by items.
- The P3 oral reading fluency tests in Kinyarwanda and in English were not included in test development processes and remain unchanged for LARS 2025. These assessments should be a priority for amendment and field trialling in advance of LARS 2027.
- Consider using linked assessment design with multiple test booklets to allow for comparison across grades and having more content coverage to develop sub scales for reporting learner performance by sub domains.
- Contextual questionnaires need to be reviewed in every cycle and undergo robust quality assurance processes before, increasing the number of schools would be essential and will have impact learning not only by reducing class size but also reducing commute time to reach schools (see recommendation above). Further, ensuring the availability of basic infrastructure such as libraries, canteens, laboratories, and reliable electricity in all schools will also improve learning.

9.2.2. Recommendations for sampling

LARS 2025 has followed a robust sampling methodology that enables reporting of learner achievement. It is recommended that the same methodology be adopted for the next cycle to enable comparison of changes in learner achievement in future cycles.

9.2.3. Recommendations for test administration

To improve the efficiency and effectiveness of future survey cycles, the following recommendations are proposed:

- Realistic scheduling for LARS preparation: Allocate dedicated days for testing material preparation, pilot, main survey, data entry and analysis to improve data quality.
- Timely material printing: Ensure all survey materials are printed and distributed prior to training sessions to avoid last-minute shortages and delays.
- Improved communication: Notify schools and key stakeholders (e.g., NESA) well in advance to prevent scheduling conflicts and ensure better coordination.
- Language accessibility: Translate the parent questionnaire into Kinyarwanda to enhance understanding and participation, especially in rural and linguistically diverse areas. Parent questionnaire can be conducted in interview mode also

Appendix I

Table 64: Distribution of sampled schools in LARS 2025 by District

District	Schools in population	Total LARS sample
BUGESERA	123	19
BURERA	123	19
GAKENKE	140	20
GASABO	83	19
GATSIBO	140	19
GICUMBI	137	20
GISAGARA	110	22
HUYE	106	21
KAMONYI	124	20
KARONGI	163	22
KAYONZA	113	21
KICUKIRO	46	19
KIREHE	107	19
MUHANGA	129	19
MUSANZE	103	21
NGOMA	99	19
NGORORERO	120	19
NYABIHU	100	20
NYAGATARE	152	20
NYAMAGABE	142	19
NYAMASHEKEKE	166	20
NYANZA	103	21
NYARUGENGE	37	19
NYARUGURU	109	19
RUBAVU	106	20
RUHANGO	98	20
RULINDO	109	20
RUSIZI	144	19
RUTSIRO	119	19
RWAMAGANA	85	19
Total	**3,436**	593

Appendix II

Table 65: Sample distribution of LARS 2025 by District

District	LARS Sample P3 and P6				LARS Sample S3			
	Expected number of learners in sample	Expected proportion of learners in sample	Number of learners in population	Proportion of learners in population	Expected number of learners in sample	Expected proportion of learners in sample	Number of learners in population	Proportion of learners in population
Bugesera	288	3.3%	8673	4.2%	224	3.2%	5077	3.6%
Burera	288	3.3%	6677	3.2%	208	3.0%	5221	3.7%
Gakenke	288	3.3%	5286	2.5%	208	3.0%	4030	2.8%
Gasabo	288	3.3%	11031	5.3%	240	3.5%	6458	4.5%
Gatsibo	288	3.3%	8543	4.1%	256	3.7%	6351	4.4%
Gicumbi	288	3.3%	7612	3.7%	252	3.6%	5091	3.6%
Gisagara	288	3.3%	6205	3.0%	224	3.2%	4464	3.1%
Huye	288	3.3%	5345	2.6%	240	3.5%	4214	3.0%
Kamonyi	288	3.3%	7821	3.8%	240	3.5%	5023	3.5%
Karongi	288	3.3%	6890	3.3%	240	3.5%	5048	3.5%
Kayonza	288	3.3%	7841	3.8%	224	3.2%	5181	3.6%
Kicukiro	288	3.3%	4939	2.4%	240	3.5%	3237	2.3%
Kirehe	288	3.3%	7461	3.6%	256	3.7%	5000	3.5%
Muhanga	288	3.3%	5554	2.7%	176	2.5%	3727	2.6%
Musanze	288	3.3%	7693	3.7%	256	3.7%	5168	3.6%

District	LARS Sample P3 and P6				LARS Sample S3			
	Expected number of learners in sample	Expected proportion of learners in sample	Number of learners in population	Proportion of learners in population	Expected number of learners in sample	Expected proportion of learners in sample	Number of learners in population	Proportion of learners in population
Ngoma	288	3.3%	6194	3.0%	224	3.2%	4016	2.8%
Ngororero	288	3.3%	5158	2.5%	192	2.8%	3630	2.5%
Nyabihu	288	3.3%	6263	3.0%	240	3.5%	4224	3.0%
Nyagatare	288	3.3%	9655	4.6%	272	3.9%	7091	5.0%
Nyamagabe	288	3.3%	6371	3.1%	208	3.0%	4679	3.3%
Nyamashekeke	288	3.3%	8438	4.0%	208	3.0%	5630	3.9%
Nyanza	288	3.3%	5917	2.8%	224	3.2%	4522	3.2%
Nyarugenge	288	3.3%	5433	2.6%	208	3.0%	3640	2.5%
Nyaruguru	288	3.3%	5274	2.5%	208	3.0%	3741	2.6%
Rubavu	288	3.3%	7903	3.8%	224	3.2%	5340	3.7%
Ruhango	288	3.3%	6434	3.1%	224	3.2%	4750	3.3%
Rulindo	288	3.3%	5400	2.6%	288	4.2%	4223	3.0%
Rusizi	288	3.3%	7894	3.8%	240	3.5%	4885	3.4%
Rutsiro	288	3.3%	6071	2.9%	208	3.0%	3970	2.8%
Rwamagana	288	3.3%	8459	4.1%	256	3.7%	5216	3.7%
Total	**8640**	**100.0%**	**208435**	**100.0%**	**6908**	**100.0%**	**142847**	**100.0%**

Appendix III

Table 66: Master trainers for the main survey

	Province	District	Candidate Names	Education level	Field/Specialization	No of schools assigned
1	East	Bugesera	Joseph Kabarangira	Bachelor's degree	Education	19
2	East	Gatsibo	Karamage Rodrigue	Master's degree	English	19
3	East	Kayonza	HABIRYAYO Athanase	Bachelor's degree	English & French	21
4	East	Kirehe	Murekatete Judith	Bachelor's degree	Economics of Education	19
5	East	Ngoma	Manase Ntirenganya	Master's degree	Education Administration	19
6	East	Nyagatare	NDAYISHIMIYE Jean De D	Master's degree	Educational Leadership and Management	20
7	East	Rwamagan	Alphonse Dusangiyiman	Bachelor's degree	Mathematics Education	19
8	City of Kigali	Gasabo	Daniel Dushimumuremyi	Master's degree	Educational Management and Administration	19
9	City of Kigali	Kicukiro	MUSIIMENTA Isaac	Bachelor's degree	Education	19
10	City of Kigali	Nyarugeng	Mugeni Marie Claire	Master's degree	Management and Administration	19
11	North	Burera	HARERIMANA Isidore	Bachelor's degree	Education	19
12	North	Gakenke	Uwibambe Protogene	Bachelor's degree	Education	20
13	North	Gicumbi	MUKAYIRANGA Juliette	Bachelor's degree	Educational management	20
14	North	Musanze	Niyonizigiye Jeanne	Bachelor's degree	Education	21
15	North	Rulindo	Twagirayezu Jean Bosco	Master's degree	Educational Management and Administration	20

16	South	Gisagara	IRAHOZA Jean Baptiste	Master's degree	Educational Management and Administration	22
17	South	Huye	Jean de Dieu Hakizimana	Bachelor's degree	Education with English	21
18	South	Kamonyi	Uwamariya Francoise	Master's degree	Educational Management and Administration	20
19	South	Muhanga	Ukurikiyeyezu Avith	Master's degree	Educational leadership and Management	19
20	South	Nyamagab	Azarugarura Fidele	Master's degree	English with Education	19
21	South	Nyanza	IYAMBAJE Immaculee	Bachelor's degree	Development studies	21
22	South	Nyaruguru	NSENGIYUMVA Boniface	Bachelor's degree	Education-English, Kinyarwanda and French	19
23	South	Ruhango	Kayitesi Adeline	Bachelor's degree	Education	20
24	West	Karongi	Abayisenga Solange	Bachelor's degree	Geography and History	22
25	West	Ngororero	Mukamugema Monique	Master's degree	Education	19
26	West	Nyabihu	Ndayambaje Vincent	Master's degree	Leadership	20
27	West	Nyamasheke	Musaniwabo Marcelin	Bachelor's degree	Education - English& French	20
28	West	Rubavu	Jean Pierre Dushimiman	Bachelor's degree	Education with English	20
29	West	Rusizi	Mukankusi Theopiste	Bachelor's degree	Education - History and Geography	19

Appendix IV

Day 1: Enumerator Training - Foundations and Tools

Time: 9:00 AM - 4:00 PM
Focus: Understanding the tools, protocols, and KoboCollect basics

Time	Session Title	Details
9:00 – 9:30 AM	Welcome, Introduction and background	Overview of the LARS survey, team roles, and training goals
9:30 – 10:15 AM	Overview of Survey Tools	Introduction to cognitive tests and contextual questionnaires
10:15 – 11:00 AM	General Administration Guidelines	Standardized test protocols and best practices
11:00 – 11:15 AM	Break	
11:15 – 12:00 PM	Student Sampling Procedures	How to select and group students per protocol
12:00 – 1:00 PM	Oral Reading Fluency (ORF) Administration	Procedures for administering ORF in Kinyarwanda and English
1:00 – 2:00 PM	Lunch Break	
2:00 – 3:00 PM	Contextual Questionnaire Administration	Instructions for administering learner and school questionnaires
3:00 – 4:00 PM	Introduction to KoboCollect	Setup, navigation, data entry, and troubleshooting in KoboCollect

Day 2: Enumerator Training - Practical Session

Time: 9:00 AM - 1:00 PM
Focus: Practice using tools and mock data collection

Time	Session Title	Details
9:00 – 9:30 AM	Recap and Q&A Session	Summary of Day 1 and clarification of key points
9:30 – 11:00 AM	Hands-on KoboCollect Practice	Guided practice using KoboCollect with test forms
11:00 – 12:00 PM	Field Simulation Activity	Mock data collection scenario to simulate school environment
12:00 – 12:30 PM	Forms, Feedback and Review	Present the forms to be used, reflection on challenges, tips, and enumerator readiness
12:30 – 1:00 PM	Closing Remarks & Next Steps	Deployment logistics, final instructions, and closing remarks

Appendix V

Test administration schedule LARS 2025

Test	Session duration	Details	Day
P3 Kinyarwanda reading fluency test	1 hour 30 minutes	Administered 1:1 in person by enumerator using tablet and Kobo Toolbox software;	Day 1 (19/05/2025)
P3 English reading fluency test (as for P3 Kinyarwanda test)	1 hour 30 minutes	Administered 1:1 in person by enumerator using tablet and Kobo Toolbox software	Day 1 (19/05/2025)
P3 Learner questionnaire	1 hour 30 minutes	Administered 1:1 in person by enumerator using tablet and Kobo Toolbox software	Day 1 (19/05/2025)
P3 English reading test	1 hour	Administered to class group; marked and data entered using Kobo Toolbox software	Day 2 (20/05/2025)
P3 mathematics test	1 hour	Administered to class group; marked and data entered using Kobo Toolbox software	Day 2 (20/05/2025)
P6 English reading test	1 hour	Administered to class group; marked and data entered using Kobo Toolbox software	Day 2 (20/05/2025)
P6 mathematics test	1 hour	Administered to class group; marked and data entered using Kobo Toolbox software	Day 2 (20/05/2025)
P6 Learner questionnaire	1 hour	Pen and paper based	Day 2 (20/05/2025)
S3 English reading test	1 hour	Administered to class group; marked and data entered using Kobo Toolbox software	Day 3 (21/05/2025)
S3 mathematics test	1 hour	Administered to class group; marked and data entered using Kobo Toolbox software	Day 3 (21/05/2025)
S3. Learner questionnaire	1 hour	Pen and paper based	Day 3 (21/05/2025)
S3 Science test	1 hour	Administered to class group; marked and data entered using Kobo Toolbox software	Day 4 (22/05/2025)
Parent questionnaires/interview	1 hour 30 minutes	Administered 1:1 in person by enumerator using tablet and Kobo Toolbox software	Day 4 (22/05/2025)

Detailed schedule

Table 67: Day 1_P3 Session 2: Kinyarwanda oral fluency test

Activity	Time	Duration
Assembly of learners in a room allotted by the school	9:00 am – 9:15 am	15 minutes
Organizing the test materials and verification of front-page information from information obtained from the school register in the testing room (different from the learner assembly room) for oral reading fluency test	9:15 am – 9:30 am	15 minutes
Administering Kinyarwanda oral reading fluency test	9:30 am – 11:00 am	1 hour 30 minutes
Validation of data collected and data entry into Kobo Toolbox	11:00 am – 11:30 am	30 minutes

Table 68: Day 1_P3 Session 2: English oral fluency test

Activity	Time	Duration
Assembly of learners in a room allotted by the school	12:00 noon – 12:15 pm	15 minutes
Organizing the test materials and verification of front-page information from information obtained from the school register in the testing room (different from the learner assembly room) for oral reading fluency test	12:15 pm – 12:30 pm	15 minutes
Administering English oral reading fluency test	12:30 pm – 2:00 pm	1 hour 30 minutes
Validation of data collected and data entry into Kobo Toolbox	2:00 pm – 2:30 pm	30 minutes

Table 69: Day 1_P3 Session 3: Learner questionnaire

Activity	Time	Duration
Organizing the learner questionnaire and verification of front-page information from information obtained from school register	1:30 pm – 1:45 pm	15 minutes
Administering learner questionnaire	1:45 pm – 2:45 pm	60 minutes
Validation of data collected	2:45 pm – 3:00 pm	15 minutes

Table 70: Day 2_P3 and P6 Session 1: English

Activity	Time	Duration
Entry of learners	9:00 am – 9:05 am	5 minutes
Distributing test materials and validation of information on the front page	9:05 am – 9:15 am	10 minutes
Reading and practice time	9:15 am – 9:30 am	15 minutes
Administering the cognitive test for P3 and P6 English	9:30 am – 10:30 am	60 minutes
Collecting and validating the used booklets	10:30 am – 10:40 am	10 minutes

Table 71: Day 2_P3 and P6 Session 2: Mathematics

Activity	Time	Duration
Entry of learners	11:00 am – 11:05 am	5 minutes
Distributing test materials and validation of information on front page	11:05 am – 11:15 am	10 minutes
Reading and practice time	11:15 am – 11:30 am	15 minutes
Administering the cognitive test for P3 and P6 mathematics	11:30 am – 12:30 pm	60 minutes
Collecting and validating the used booklets	12:30 pm – 12:40 pm	10 minutes

Table 72: Day 2_P6 Session 3: Learner questionnaire

Activity	Time	Duration
Organizing the learner questionnaire and verification of front-page information from information obtained from school register	1:30 pm – 1:45 pm	15 minutes
Administering learner questionnaire for P6	1:45 pm – 2:45 pm	60 minutes
Validation of data collected	2:45 pm – 3:00 pm	15 minutes

Table 73: Day 3_S3 Session 1: English

Activity	Time	Duration
Entry of learner	9:00 am – 9:05 am	5 minutes
Distributing test materials and validation of information on front page	9:05 am – 9:15 am	10 minutes
Reading time	9:15 am – 9:30 am	15 minutes
Administering the cognitive test for S3 English	9:30 am – 10:30 am	60 minutes
Collecting and validating the used booklets	10:30 am – 10:40 am	10 minutes

Table 74:Day 3_S3 Session 2: Mathematics

Activity	Time	Duration
Entry of learner	11:00 am – 11:05 am	5 minutes
Distributing test materials and validation of information on front page	11:05 am – 11:15 am	10 minutes
Reading time	11:15 am – 11:30 am	15 minutes
Administering the cognitive test for S3 Mathematics	11:30 am – 12:30 pm	60 minutes
Collecting and validating the used booklets	12:30 pm – 12:40 pm	10 minutes

Table 75: Day 3_S3 Session 3: Learner questionnaire

Activity	Time	Duration
Organizing the learner questionnaire and verification of front-page information from information obtained from school register	1:30 pm – 1:45 pm	15 minutes
Administering learner questionnaire for S3	1:45 pm – 2:45 pm	60 minutes
Validation of data collected	2:45 pm – 3:00 pm	15 minutes

Table 76: Day 4_S3 Session 1: Science

Activity	Time	Duration
Entry of learner	9:00 am – 9:05 am	5 minutes
Distributing test materials and validation of information on front page	9:05 am – 9:15 am	10 minutes
Reading time	9:15 am – 9:30 am	15 minutes
Administering the cognitive test for S3 English	9:30 am – 10:30 am	60 minutes
Collecting and validating the used booklets	10:30 am – 10:40 am	10 minutes

Table 77: Day 4_Session 3: Parent/Carer questionnaire

Activity	Time	Duration
Organizing the parent questionnaire and verification of front-page information from information obtained from school register	1:30 pm – 1:45 pm	15 minutes
Administering parent questionnaire for P3, P6 and S3	1:45 pm – 2:45 pm	60 minutes
Validation of data collected	2:45 pm – 3:00 pm	15 minutes

If any learner needs additional time, up to 15 minutes of additional time can be provided. Any such instance must be recorded in the Session Report Form.

Appendix VI

Table 78: Learner background variables with significant impact on P3 English performance

Variables	Regression coefficient P3	Regression coefficient P6	Regression coefficient S3
Female	5.95	NS	-11.20
Fathers' occupation - full time employee	9.46	NS	7.88
Mothers' occupation - full time employee	11.49	11.30	15.74
Fathers' education- upper secondary	NS	7.79	8.49
Mother's Education-upper secondary	NS	20.75	21.87
Internet availability	9.20	5.15	8.62
Mobile phone	NS	6.85	NS
Television availability	8.07	6.86	17.17
Electricity availability	NS	5.59	5.67
Books availability	NS	6.76	7.29
Reading likability score	3.30	2.42	-5.26
Math's easiness score	5.28	NS	NS
Reading difficulty score	NS	-4.25	-2.8
School perception score	-5.03	NS	NS
Kinyarwanda as medium of instruction	-9.45	NS	NS
School commute time	NS	-4.52	-7.57
School distance	NS	NS	8.65

Figure 74: P3 mathematics mean scale score by learners' socioeconomic background

Variables	Regression coefficient P3	Regression coefficient P6	Regression coefficient S3
Female	NS	–7.45	–7.70
Fathers' occupation – full time employee	NS	9.64	10.21
Mothers' occupation – full time employee	8.40	NS	15.76
Fathers' education – upper secondary	NS	NS	NS
Mother's education – upper secondary	NS	NS	NS
Books availability	NS	NS	7.84
Electricity availability	NS	NS	NS
Internet availability	NS	NS	NS
Mobile phone	NS	NS	NS
Television availability	6.41	–9.92	NS
Number of rooms at home	NS	–5.68	NS
Reading likability score	2.56	NS	–4.50
Math's easiness score	3.78	NS	NS
Reading difficulty score	NS	NS	3.01
School perception score	NS	NS	NS
Kinyarwanda as medium of instruction	–8.75	NS	NS
Teacher language use – Kinyarwanda	NS	10.19	NS
School commute time	–6.63	–4.52	–5.52
School distance	NS	NS	9.80
Teacher activities score	NS	NS	2.95

Table 79: Significant learner background variables in S3 science performance

Variables	Regression coefficient	S.E.	t-values
Books availability	5.31	2.03	2.61
Female	-12.41	1.25	-9.95
Fathers' occupation-Full time employee	6.50	3.19	2.04
Mother's Education-upper secondary	9.92	4.57	2.17
Reading Likability score	-3.62	.99	-3.64
Reading difficulty score	3.62	.93	3.89
School commute time	-4.62	2.34	-1.97
School distance	7.49	2.08	3.59