NESA | NATIONAL EXAMINATION AND SCHOOL INSPECTION AUTHORITY

LEARNING ACHIEVEMENT IN RWANDAN SCHOOLS

EXECUTIVE SUMMARY REPORT
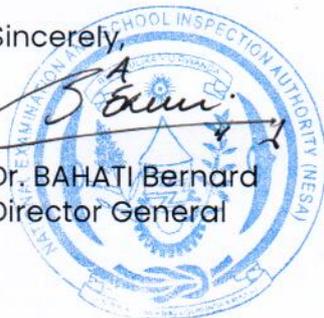
AUGUST 2022

Foreword

Regular or periodic learning assessments in basic education and autonomous evaluations of the performance of student learning can contribute to the accountability of basic educational systems. It is imperative that various forms of learning assessment are conducted to fast-track learners' progress towards the expected learning thresholds across different grade levels and design targeted interventions to improve learning, such as continuing to strengthen existing Learning Assessment in Rwanda Schools (LARS) based on the benchmarks that would help in the future to compare basic education with others. To respond to the growing demand for data on student learning in numeracy and literacy in grade 3 (P3), NESA and REB, through the Rwanda Quality Basic Education for Human Capital Development Project, conducted Learning Achievement in Rwandan Schools (LARS 2021) involving the necessary individuals, schools and partners as providers and consumers of educational services for the purpose of providing insight into the current state of student learning and help to set targets to improve student learning in basic education.

In this context, the report of Learning Achievement in Rwandan Schools shows the learning thresholds attained by female and male students in different subjects across grades. This report highlights key data driven recommendation that are critical to improve learning outcomes in Rwandan schools. There is no valid assessment than that which measures learning outcomes at the classroom level, and this is what makes LARS a unique form of assessment. By this logic, I trust that education partners will tap into their resources and expertise to ensure that suggested recommendations are effectively implemented.

We have full confidence in the long-established collaboration with our all partners. The experience gained from producing this report assures us that there is solid resolve among our partners and their deep engagement that will help to progress and tackle key challenges in basic education. We continue to count on the good synergy with our partners as we move forward together to improve teaching, learning and assessment in basic education.

NESA in collaboration with partners will continue its efforts to provide useful data based on student learning and to foster schools' assessments for the improvement of basic education.

Sincerely,

Dr. BAHATI Bernard
Director General

Contents

List of Tables

List Of graphs

ACRONYMS

AIC	Akaike Information Criterion
ANOVA	Analysis Of Variance
CFA	Confirmatory Factor Analysis
CFI	Comparative fit index
CI	Confidence Interval
CWPM	Correct Words Per Minute
DE	Design Effect
EGRA	Early Grade Reading Assessment
ESAD	Examination, Selection and Accreditation Department
ESSP	Education Sector Strategic Plan
GS	Groupe Scolaire
ICC	Item Characteristic Curve
IIC	Item Information Curve
IRT	Item Response Theory
LARS	Learning Achievement in Rwandan Schools
LRT	Likelihood Ratio Test
MINEDUC	Ministry of education
NESA	National Examination and School Inspection Autority
ORF	Oral Reading Fluency
P1	Primary 1
P2	Primary 2
P3	Primary 3
Qi (i=1,2,...)	Question i (i=1,2,3....)
REB	Rwanda Basic Education Board
RMSEA	Root Mean Square Error of Approximation
SD	Standard Deviation
SPIU	Single Project Implementation Unit
SPSS	Statistical Package for the Social Sciences
SRS	Simple Random Sampling
TCC	Test Characteristic Curve
TIF	Test Information Function
TLI	Tucker–Lewis fit Index
ToR	Terms of Reference

1. Introduction

The Learning Achievement in Rwandan Schools (LARS) is a national sample-based learning assessment, which was administered in Rwandan schools in 2021. LARS aims to provide insights into the performance of the Rwandan Basic Education sector over time by measuring learning outcomes and serve as a reliable basis for recommendations to the Ministry of Education and to other stakeholders within the sector for policy making and implementation.

The LARS which was conducted in 2021, focused on P3, P6 and S3 learning outcomes in Literacy, Numeracy and Science. P3 students were assessed in English, Kinyarwanda and Mathematics. P6 students were assessed in English and Mathematics. S3 students were assessed in English, Mathematics and Science. It is noteworthy to mention that LARS targeted P4, S1 and S4 student but measured competencies acquired during previous school year.

During the months of February and March 2021, LARS was administered to a representative sample of Schools national wide. In addition, interviews were conducted with students, head teachers, REB officials and focus group discussions with teachers to generate qualitative data on a range of factors that influence performance of students on learning tasks.

2. Assessment Tools Development

2.1 Methodology and Analytical Framework

A systematic and multi-stakeholder approach was used to develop the LARS 2021 tools. The REB team conducted a curriculum mapping to ensure LARS 2021 instruments/ tools assessed the key knowledge and competences expected in the subjects of focus. Development Partners (DPs) with relevant expertise were involved in the review of the test items. This included The Building Learning Foundations (BLF), which provided support during the P3 and P6 English and Mathematics items. USAID Soma-Umenye, which worked on P3 Kinyarwanda items, and Laterite team, who worked on S3 test items (English, Mathematics and Science). From this multi-stakeholder review exercise, feedback on the tools was generated and incorporated to improve the quality of the tools. In February 2020, a consultant was hired to support the REB other DPs team and to conduct the assessment.

Prior to the administration of the tools, they were digitized using Kobo toolbox software. This marked great progress both in the management of data and real time access to collected data from the field. Data collection involved about 90 data enumerators including REB staff and Master Students from the University of Rwanda-College of Education.

2.2 Population and Sample size calculation

Since the Rwandan population is known, the **Raosoft formula** was used to calculate the sample size: In terms of the numbers within the population, the sample size n and margin of error E are given by:

$$X = Z(^c/_{100})^2 r(100-r); \quad n = {}^{Nx}/_{((N-1)E^2 + x)}; \quad E = \text{Sqrt}[{}^{(N-n)x}/_{n(N-1)}];$$

where N is the population size, r is the fraction of responses rate that you are interested in, and $Z(c/100)$ is the critical value for the confidence level c.

The table 2.1 below summarizes the assessed grade levels, subjects and number of students that sat for the tests:

Table 2.1: Assessed grade levels, subjects and number of students that sat for the tests

Grade Level	Test	Number of Questions	Number of examinees
P3	English	30	794
	Numeracy	30	791
	Kinyarwanda	30	715
P6	Literacy	30	760
	Numeracy	30	756
S3	English	30	769
	Numeracy	30	766
	Science	30	769
Total			**6120**

The analysis of LARS 2021 focused on the following aspects among others:

1. ***Implementation of Item Response Theory (IRT) and calculation of expected learning thresholds (i.e. below expectations, meets expectations, above expectations)***. Under this aspect, discussions and documentation of the appropriateness of learning thresholds and their implications to learning have been identified. In addition, alternatives to IRT have been discussed and commentary made on the appropriateness of IRT vis a vis other methods of analysis. This was used to improve measurement accuracy and reliability.

2. ***Determine test dimensionality using Confirmatory Factor Analysis (CFA) models***. Under this component, an internal structure for each one of the tests has been produced by estimating CFA models. Model fit measures and standardized factor loadings have been developed to identify the association between the items and the latent factor measured in each test.

3. ***Conduct internal consistency analysis***. Cronbach's Alpha internal consistency coefficient for each test has been calculated. Changes have also been reported in this coefficient when each item is dropped, as well as item-test total score point-biserial correlation statistics

As complementary to the IRT models, the following approaches and analyses were also implemented:

a. ***Determination of the Proportion of examinees that answered each item correctly***. As a measure of item difficulty, the proportion of examinees that answered each item correctly was calculated and documented. The information on item difficulty from this analysis complements the IRT analyses since items with extreme easiness or difficulty are not psychometrically adequate for the purposes of this learning assessment. This analysis was also used to inform the revision of the tools for Subsequent LARS. It was later estimated using three Parameter Logistic Model (3pL) models as one of the IRT models, which inform on item difficulty, discrimination and guessing.

b. *Presentation of learning achievement results, analysis of the type of questions children are able to answer and which type of questions they are not*: Aggregate level findings on test scores in P3/P6 on numeracy and literacy and S3 in numeracy, literacy, and Science were documented and discussed.

c. *Analysis of how learning achievements relate to various schools and household level factors in a structured way*. Based on the existing data, a list of hypotheses to be tested were identified. Secondly, consideration of various models for analysis has been made (including hierarchical linear models (HLMs), multivariate linear regression with sandwich estimators for standard errors, etc. The most appropriate model has been selected for further analysis. Associations between learning achievements and other parameters have also been established and their policy implications has been discussed.

2.3 Survey design and sampling frame

To conduct this study, according to its objective, the sampling method adopted was that of a two-Stage Cluster-Survey. The first stage is sample of 296 Schools and the second one is a sample of 18 students from each sampled school. For the stage one survey, the weights used are 101/2272, 101/2245 and 94/1150 for P3, P6 and S3 respectively and overall weights are 1/ [(101/2272) × (18/district size)], 1/ [(101/2245) × (18/district size)] and 1/ [(94/1150) × (18/district size)] for P3, P6 and S3 respectively.

2.4 Design Effect (DE)

From the aforementioned sampling frame, the design effect was calculated in order to measure the extent to which comparison of the variance of one design to the variance of the simple random sample. Design effect is defined by DE = Variance (survey design)/ Variance (SRS[1]) therefore, if

- Design effect > 1 survey design has more variability (less precise)
- Design effect < 1 survey design has less variability (more precise)

2.5 Subject Benchmarks

In Early 2021, REB developed Benchmarks, which are cut-off scores aimed at facilitating the Ministry of Education to compare learners' proficiency levels at regional and international proficiency levels in different subject across different grades. REB therefore advised that students' performance on the administered test be analyzed using the approved benchmarks based on performance category *"meets expectations, does not meet expectations, partially meets expectations and exceeds expectations"* using the following boundaries:

---

1   SRS: Simple Random Sample

Table 2.2: Subject Benchmarks boundaries

Grade	Subject	Doesn't meet Expectations	Partially Meets Expectations	Meets expectations	Exceeds expectations
P3	English	1-49	50-65	66-91	92-100
	Math	1-30	31-62	63-96	97-100
P6	English	1-49	50-67	68-96	97-100
	Math	1-47	48-62	63-97	98-100
S3	English	1-44	45-59	60-97	98-100
	Math	1-36	37-56	57-90	91-100
	Science	1-38	39-51	52-84	85-100

3. Key Findings

3.1 P3 Key Findings

3.1.1 Kinyarwanda results

It is to be noted that P3 Kinyarwanda assessment tools were different from those used in other grades and consisted of subtasks that assessed the foundational literacy skills: grammar, general knowledge of language and writing skills, Familiar Word reading, Oral Reading Fluency, and Reading Comprehension.

The P3 Kinyarwanda test was administered to measure the students' performance in reading, writing, grammar and general knowledge of language in early grades. The data shows that, P3 students who are below categorization (scored zero) varied per subtasks. For the grammar, general knowledge of language and writing, the findings show that the percentage of zero scores was very low (1 percent) but the percentage of zero scorers slightly increased in other reading subtasks (reading familiar words, Oral reading fluency and reading comprehension) where the zero scores were 3 percent, 4 percent and 9 percent respectively.

However, oral reading fluency and reading comprehension subtasks have a significant number of students (54 percent) who reached the grade-level reading performance benchmark. 54 percent of student scored above the Oral reading fluency benchmark which is reading at least 40 correct words per minute. In addition, the majority of students (68 percent) reached the benchmark in reading comprehension as they answered at least 4 comprehension questions of the text.

3.1.1.1 Familiar word reading

The familiar word subtask measures students' ability to read familiar words with fluency and accuracy, both of which are necessary to become fluent readers. For this subtask, students were given a sheet of 50 familiar words with instructions to read as many as they could within one minute. The words were selected from P1, P2 and P3 Kinyarwanda reading materials (e.g., textbooks) available in the classroom. For familiar word subtask the mean score is the average number of correct words out of 50 read by a student in a time of one minute.

Table 3.1: Number of incorrect, not attempted and correct

	Mean	SD	Min – Max
Not attempted	19.3	12.6	0 – 50
Incorrect	2.5	4.0	1 –50
Correct	28.1	13.7	1 – 50

Table 3.1 above shows the results for the familiar word reading subtask. According to the results, during the test the P3 students read an average of 28.1 words correctly out of 50 words that they were supposed to read. 3% of the students could not identify one familiar word correctly and thus scored zero.

Results by gender show that girls performed better than boys but differences in boys' and girls' performance is not very significant. Girls read an average of 28.8 out of 50 compared to 27.3 out of 50 for boys (table 3.2).

Table 3.2: Familiar Word Reading Mean Scores by Gender

	n	Mean	SD	Min	Max	% Zero Score
Boys	355	27.3	13.5	0	50	3%
Girls	360	28.8	13.8	0	50	3%

Table 3.3: Familiar Word Reading Mean Scores by Province

Province	Mean
Eastern	27.3
Kigali City	31.2
Northern	28.5
Southern	30.3
Western	25.7

Results by province show that, Kigali City scored the highest with a mean score of 31.3 out of 50 while the Western province ranked the lowest (25.7 out of 50). Students in the Southern, Northern and Eastern provinces scored an average of 30.3, 28.5 and 27.3 respectively (table 3.3).

3.1.1.2 Oral reading fluency

The oral reading fluency (ORF) subtask measures students' ability to read a short story with sufficient speed, accuracy and expression. The ORF subtask is a timed task to assess students' fluency rates. During P3 LARS 2021 Kinyarwanda students were asked to read a P3 level short passage within one minute. The mean score is expressed as the correct number of words per minute (cwpm).

Table 3.4: Reading fluency scores and time spent by student reading a story

Scales	Mean	SD	Min	Max
CWPM	39.2	17.6	0	59
Time spent reading (Seconds)	62.6	18.2	0	180

The table 3.4 above shows that P3 students read an average of 39.2 cwpm during ORF subtask of P3 LARS 2021 Kinyarwanda. The maximum number of words read correctly in one minute was 59. Up to 4% of students could not read a single word correctly in one minute.

From results by gender shown in table 3.5, girls read an average of 40.5 cwpm while boys read an average of 37.9 cwpm. Both boys and girls achieved a higher maximum score of 59 cwpm. However, the percentage of students with zero scores is higher to girls than boys (4% versus 3%, respectively).

Table 3.5: Oral Reading Fluency Mean Scores by Gender

	n	Mean	SD	Min	Max	% Zero Score
Boys	355	37.9	17.8	0	59	3%
Girls	360	40.5	17.2	0	59	4%

Results by province show that Oral Reading Fluency mean scores across provinces ranged from a high of 42.6 cwpm in City of Kigali to a low of 37.2 cwpm in Western Province (See Table 58). The Southern, and Eastern and Northern provinces scored 41.8 cwpm, 38.9 cwpm and 38.2 cwpm respectively.

Table 3.6: Oral Reading Fluency Mean Scores by Province

Province	Mean (cwpm)
Eastern	38.9
Kigali City	42.6
Northern	38.2
Southern	41.8
Western	37.2

3.1.1.3 Reading comprehension

This subtask measured students' ability to comprehend a P3 grade-level text -- the story passage they had read aloud in the ORF subtask. Students were asked from zero to five comprehension questions based on how much of the passage they had read. For instance, if they had not read any of the passage, they were not asked any questions; if they had read the first 20 words, they were asked the questions that corresponded to that part of the text; and if they read the entire passage, they were asked all five questions.

Table 3.7: Reading Comprehension Scores

	Mean	SD	Min – Max
Questions attempted	4.7 (94%)	1 (10%)	0 (0%) – 5 (100%)
Questions answered Correctly	3.9 (77%)	1.4 (27%)	0 (0%) – 5 (100%)

The results from P3 LARS 2021_ Kinyarwanda show that students answered an average of 3.9 out of 5 questions correctly which correspond to 77% of reading comprehension score (table 3.7). The average attempted questions in reading comprehension are 4.7 which represents 94%. The students who were not asked any questions because they scored zero on the ORF subtask and those who were asked at least a question but did not answer it correctly represent 5 percent.

Results from the table 3.8 show that for the average comprehension scores for boys are slightly higher than the comprehension scores for girls (77% for girls compared to 78% for boys). In addition, more girls scored zero than boys, (6% of girls and 5% of boys).

Table 3.8: Reading Comprehension Mean Scores by Gender

	n	Mean	SD	Min	Max (%)	% Zero Score
Boys	355	78%	26%	0	100%	5%
Girls	360	77%	28%	0	100%	6%

With the reading comprehension subtasks, Kigali City had the highest Reading Comprehension score (82%) while both Eastern and Northern provinces ranked the lowest at 76% correct (See table 3.9).

Table 3.9: Reading Comprehension Mean Scores by Province

Province	Mean
Eastern	76%
Kigali City	82%
Northern	76%
Southern	78%
Western	77%

3.1.1.4 Comparison of reading fluency and comprehension scores

Correlations across the P3 LARS_ Kinyarwanda subtasks are displayed in table 3.10. It is clear from this table that the strongest correlation is between Oral Reading Fluency and Reading Comprehension which is 0.6. Other pairwise correlations are negative and less than 0.50 threshold (this includes familiar words reading and Oral Reading Fluency, and Familiar word Reading and Reading Comprehension subtasks).

Table 3.10: Inter-subtask Correlation Matrix

	Familiar word reading	Oral Reading Fluency	Reading Comprehension
Familiar word reading	1.000		
Oral Reading Fluency	−.396	1.000	
Reading Comprehension	−.451	.600	1.000

3.1.1.5 Percentage of students meeting performance standards

In 2019, the Rwanda Basic Education Board established national benchmarks for P1 to P3 for two reading skills: oral reading fluency (how quickly and accurately pupils read) and reading comprehension (pupils' ability to extract information from a text). These benchmarks and cut-off scores were used by the investigator to analyse the student performance from LARS 2021_ P3 Kinyarwanda. Therefore, the analysis is informed by how the learners performed on each subtask using the P3 Kinyarwanda reading benchmarks and cut scores presented in table 3.11 below:

Table 3.11: P3 Reading Fluency and Comprehension Standards

Below Categorization	Does not meet expectations	Partially meets expectations	Meets Expectations	Exceeds expectations	Bench-Marks
Oral Reading Fluency	0 cwpm	1 to 17 cwpm	18 to 39 cwpm	40 to 50 cwpm	51+ cwpm	40 cwpm
Reading Comprehension	0	20%	40% to 60%	80%	100%	80%

*cwpm = correct word per minute

3.1.1.6 P3 Kinyarwanda performance in items related to grammar, general knowledge of language and writing

Students who participated in LARS 2021 Kinyarwanda were also assessed on their skills on Grammar, general knowledge of language and writing. Since there are not specific benchmarks approved by REB for these sub-skills. These skills were tested from the question 1(Q1) to question 13 (Q13). After marking all those questions, the analyst categorized student scores according to the following ranges:

- First range = [76 to 100 marks out of 100]

- Second range = [51 to 75 marks out of 100]

- Third range = [26 to 50 marks out of 100]

- Fourth range = [0 to 25 marks out of 100]

The findings show that, the majority of students (54 percent) who participated in LARS IV subtask scored more that 75 out of 100, which shows the mastery of grammar, general knowledge of language and writing. However, 29 percent of the students scored between 51 and 75 out of 100 while 17 percent scored 50 out of 100 or less

Table 3.12: Categorization of Kinyarwanda performance (Q1-Q13)

P3_LARS_2021_KINYARWANDA_PERFORMANCE_CATEGORIZATION_Q1-Q13					
Description	[0%,25%]	[26%,50%]	[51%,75%]	[76%,100%]	Total
Number	69	52	208	386	715
Percentage	10%	7%	29%	54%	100%

3.1.1.7 P3 Student performance in reading familiar words

During the administration of LARS 2021 Kinyarwanda in P3, each selected student was given 50 words to test their accuracy and decoding skills. This LARS familiar words subtask was timed and, speed and accuracy measured in terms of the number of correct words read by a student in one minute. Findings for the LARS Reading of familiar words sub-task are presented in the next table

Table 3.13: Kinyarwanda Reading Fluency Q14 A

P3_LARS_2021_KINYARWANDA_READING FLUENCY_Q14_A					
Description	Below Cate-gorization	Does not meet expec-tations	Partially meets ex-pectations	Meets Ex-pectations	Total
Number	24	141	390	160	715
Percentage	3%	20%	55%	22%	100%

The above table shows that, among the P3 students who participated in LARS Test for Kinyarwanda, the percentage of those who are below categorization (scored zero) is 3 percent. However, a significant number of students (75 percent) still fell below the P3 performance categories ("doesn't meet" and "partially meets" category). Only 22 percent of P3 students, who were tested, reached the grade-level reading performance benchmark, which is reading at least 40 correct words per minute. Note that these familiar words read by students were not connected.

3.1.1.8 P3 student performance in oral reading fluency

During the administration of LARS 2021 Kinyarwanda in P3, each selected student was given a short-written passage entitled "**Umusaza n'Akanyoni (The old man and a bird)**" on a familiar topic and asked to read it out loudly "quickly but carefully". This LARS Oral Reading Fluency subtask was timed and, speed and accuracy measured in terms of the number of correct words read by a student in one minute. Findings from the analysis for the LARS Oral Reading Fluency of a connected story are presented in table 3.14.

Table 3.14: P3 Kinyarwanda Oral Reading Fluency

P3_LARS_2021_KINYARWANDA_READING FLUENCY_Q14_B						
Description	Below categorization	Does not meet expectations	Partially meets expectations	Meets Expectations	Exceeds expectations	Total
Number	**27**	**70**	**166**	**179**	**205**	**715**
Percentage	4%	10%	23%	25%	29%	100%

The table 3.14 shows that, among the P3 students who participated in LARS 2021 Test for Kinyarwanda, the percentage of those who are below categorization (scored zero) is 4 %. However, a significant number of students (54 %) reached the grade-level reading performance benchmark which is reading at least 40 correct words per minute while the other 33 % still fell performance categories below benchmark ("doesn't meet" and "partially meets" category).

3.1.1.9 P3 Students performance in reading comprehension

LARS 2021 Kinyarwanda measured reading comprehension through the reading comprehension subtask, based on the passage that each selected student had read aloud for the oral reading fluency subtask. After a student had read the passage aloud, she or he was asked five comprehension questions, to check if they comprehended what they had read in the passage. Reading comprehension findings from LARS 2021 are presented in the table 3.15 below.

Table 3.15: P3 Kinyarwanda Reading Comprehension

P3_LARS_2021_KINYARWANDA_PERFORMANCE_CATEGORIZATION_Q15-Q19						
Description	Below categorization	Does not meet expectations	Partially meets expectations	Meets Expectations	Exceeds expectations	Total
Number	**62**	**49**	**118**	**245**	**241**	**715**
Percentage	9%	7%	17%	34%	34%	100%

For LARSIV Kinyarwanda in P3, the share of those who scored zero (Below the categorization) was 9 percent of the total students who participated in the test. The majority of students answered at least four questions for comprehension (68 %), which means that many students read and understood the text. However, the proportion of students who were categorized under the benchmark score (Partially meets and does not meet expectations) stood at 24 %.

3.1.1.10 Quality of the reading comprehension questions

Tables 3.16 present indices of the quality of the reading comprehension for P3 LARS_ Kinyarwanda. To measure the quality of reading comprehension items the investigator used Cronbach's alpha coefficient, which is an overall reliability index of quality, is also reported in the following tables. Looking at the quality of the reading comprehension questions, we observed (Cronbach's alpha= 0.70) which means that the reading comprehension questions are more reliable.

Table 3.16: Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.70	.75	5

The difficulty represents the proportion of students who provide a correct answer, while the discrimination represents the power of each item to discriminate between high- and low-performing students.

Table 3.17: Quality indices for reading Comprehension subtask

Questions	Difficulty Index	Discrimination
Question 1	0.92	0.85
Question 2	0.85	0.81
Question 3	0.77	0.73
Question 4	0.66	0.59
Question 5	0.51	0.62
Cronbach's alpha		**0.70**

The table 3.17 depicts that the difficult index is actually high for question 1(0.92) and low for question 5. For the discrimination index, it is observed that questions 1, 2 and 3 were not very good in quality because they were very easy and their discrimination index is greater than 0.70, while question 4 and five were very good items as the discrimination index is between 0.30 and 0.70.

3.1.2 P3 Findings in English Literacy and Numeracy

With reference to the benchmarks depicted in table 2.2, it was noted that student's performance in English for P3 Literacy was low, with only 10.08% of the students meeting curriculum expectations and achieving the expected score of above 66% on the test. Qualitative data revealed that some of the factors associated with low performance in English in lower Primary include low English Proficiency of teachers, lack of English learning and teaching materials and the tendency to assign lower primary to senior teachers (with very many years in the teaching service) but whose adjustment and mastery of English is relatively difficult.

For P3 Numeracy, students' results indicate that although there was a relatively wide discrepancy in students' scores as reflected in the Standard Deviation (SD) of 6.73, students performed relatively well as indicated by a Mean performance score of 64.44%. Indeed, 60.94% of the participants achieved the grade level benchmarks.

3.1.2.1 Distribution of participants by subject and gender

P3 students who participated in LARS 2021 for English and Numeracy are 794 and 791 respectively. The table 3.18 provides detailed distribution of these participants by subject and gender.

Table 3.18: P3 Participation by subject and gender in English and Numeracy

Description		Student's Gender		
level	Subject	Female	Male	Total
P3	English	400	394	794
	Numeracy	398	393	791
P3 Total		**798**	**787**	**1585**
P3	English	50.38%	49.62%	100.00%
	Numeracy	50.32%	49.68%	100.00%
P3 Total		**50.35%**	**49.65%**	**100.00%**

The table 3.18 indicates that 400 girls out of 794 (50.38%) and 394 Boys out of 794 (49.62%) participated in English test while 394 girls out of 791 (50.32%) and 393 Boys out of 794 (49.68%) participated in Numeracy test.

3.1.2.2 Performance of P3 Students in English

P3 participants for this survey were from 112 different schools from the entire country. These P3 students attempted an English Test encompassing item of their level. In total, 794 responses were collected, analysed and compared to the set performance benchmarks. Figure 3.1 presents a summary of the performance.

Figure 3.1: Performance of P3 Students in English

Low	Mean	Mode	High	Benchmark		Standard Variation	Responses	Number of Schools
3.33%	42.25%	36.67%	96.6%	Meet Benchmark	Does not meet Benchmark	4.86	794	112
				10.08%	89.92%			
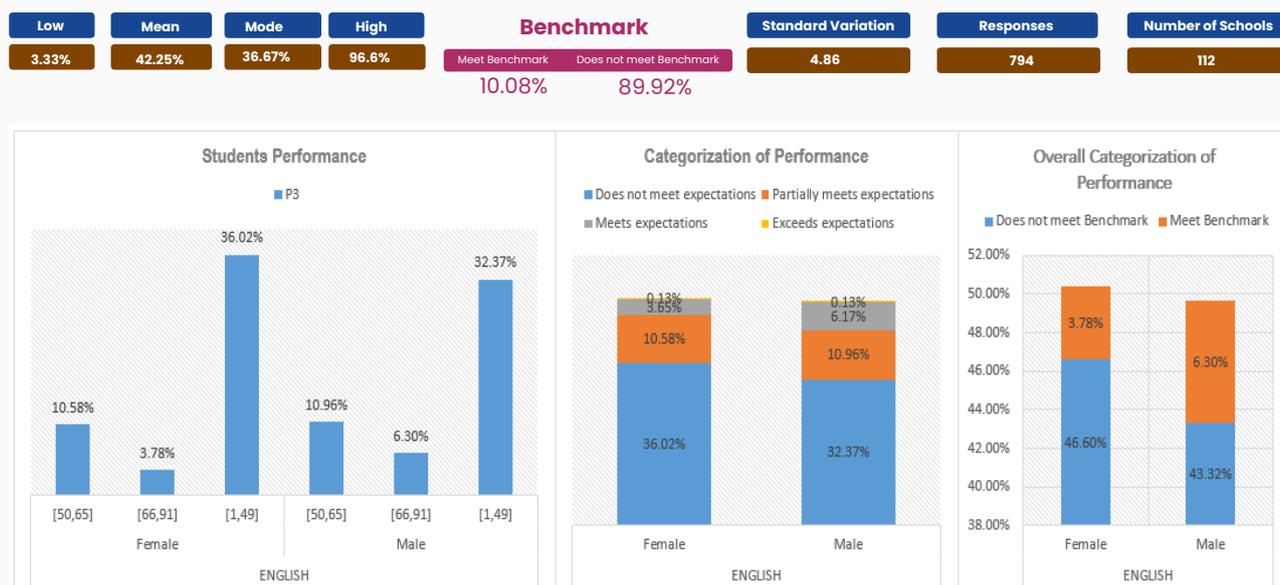
Data in Figure 3.1 demonstrates that a higher proportion of P3 students did not attain the benchmark. The computed Mean Performance was 42.25%; a total of 10.08% of all participants met the benchmark. This includes 3.78% of female participants and 6.3 % of male.

As observed above, the overall performance of P3 students in English was low; this is highly likely due to the fact that until 2019 Kinyarwanda was the Language of instruction in lower primary and that the language of instruction changed to English slightly before the survey. In addition, many of the students who did LARS test were in rural areas and did not have adequate prior exposure to English as many students did not learn it in their early grades of primary or nursery. There is also a tendency for school leaders to place in/allocate teachers of advanced age to lower primary classes. Often, these will have not learnt English and therefore lack the necessary competence to teach it. Similarly, school leaders tend to assign low performing teachers to lower primary classes, which contributes to poor performance especially in English. It should also be noted that English is rarely used at home and many parents are unable to help students at home leading to low performance.

3.1.2.3 Performance of P3 Students in Numeracy

As per the survey design, P3 students from the 112 selected schools countrywide attempted the numeracy test. In total responses were collected from 791 students, analysed and contrasted with the set performance benchmarks. Figure 3.2 provides a look into the analysis.

Figure 3.2: Performance of P3 Students in Numeracy

Low	Mean	Mode	High	Benchmark		Standard Variation	Responses	Number of Schools
3.33%	64.44%	73.33%	100.00%	Meet Benchmark	Does not meet Benchmark	6.73	791	112
				60.94%	39.06%			
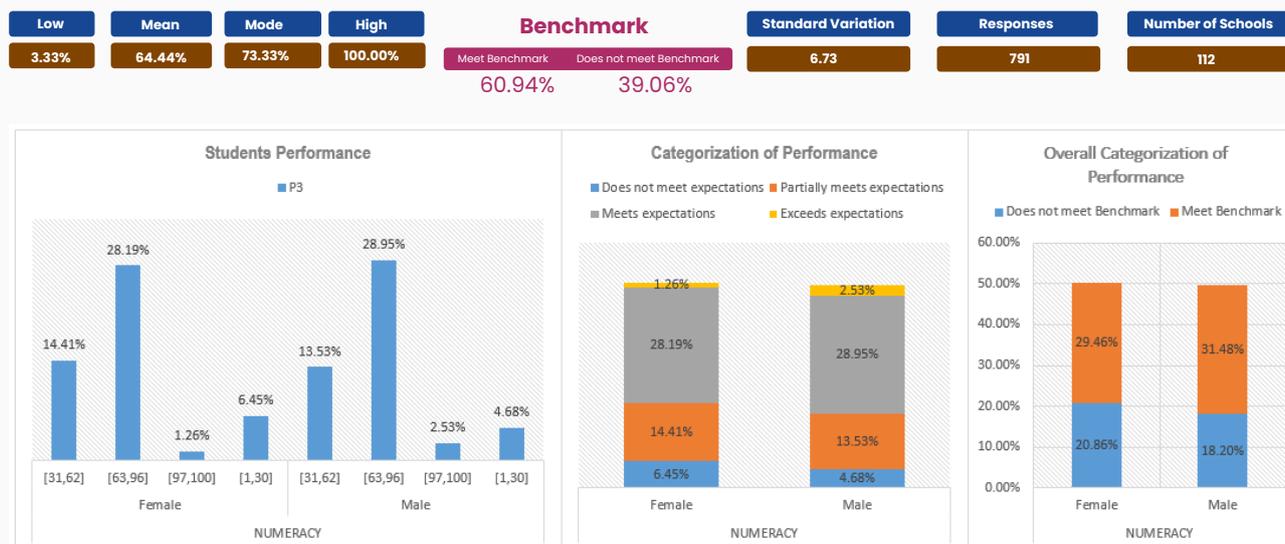
The analysis of the data in Figure 3.2 indicates that though there has been a wide discrepancy in students' scores as reflected in the Standard Deviation (SD) of 6.73. P3 students performed relatively well in numeracy because the calculated Mean performance was 64.44%. Indeed, 60.94% of the participants met the expectations (28.19% Female and 28.95% Male) whereas 3.79% (1.26% Female and 2.53% Male) exceeded the expectations.

The respondents attributed this performance of Primary three (P3) students in numeracy to the fact that the LARS test was done in Kinyarwanda and learners had studied the same subject in Kinyarwanda before the introduction of English as a medium of instruction in Lower Primary; hence parents and other caregivers could be able to help learners as they understand the subject in Kinyarwanda.

Respondents pointed out some factors that contributed to discrepancy in performance. This includes the fact that the curriculum content was considered to be very wide and some teachers just rushed to complete the syllabus. It was also stated that big class sizes were causing under performance. Respondents stated that before Covid-19 outbreak, some classes had at least 70 students per shift, where it was difficult for teacher to effectively teach and control the class. Double shifting was another factor named, since students had fewer hours per day to study, which contributed to low performance.

3.1.2.4 Performance of P3 Students by age and subject

P3 candidates who participated in this survey did English and Numeracy test. These candidates –though studying the same class- had different chronological age; a difference that can be attributed to school/community related context, students' transition and retention differences across surveyed Provinces and City of Kigali. Table 3.19 gives a comparative look of the surveyed P3 students' performance by age and subject.

Table 3.19: Detailed Performance of P3 Students by age and subject

Age	Does not meet Benchmark	Meet Benchmark	Total
⊟ **P3**	**64.54%**	**35.46%**	**100.00%**
⊟ **ENGLISH**	**89.92%**	**10.08%**	**100.00%**
Over 15 Years	83.33%	16.67%	100.00%
15	83.87%	16.13%	100.00%
14	95.65%	4.35%	100.00%
13	90.32%	9.68%	100.00%
12	94.61%	5.39%	100.00%
11	89.67%	10.33%	100.00%
10	86.45%	13.55%	100.00%
9	85.25%	14.75%	100.00%
8	100.00%	0.00%	100.00%
⊟ **NUMERACY**	**39.06%**	**60.94%**	**100.00%**
Over 15 Years	41.18%	58.82%	100.00%
15	25.81%	74.19%	100.00%
14	45.65%	54.35%	100.00%
13	44.09%	55.91%	100.00%
12	47.90%	52.10%	100.00%
11	36.32%	63.68%	100.00%
10	34.19%	65.81%	100.00%
9	33.33%	66.67%	100.00%
8	20.00%	80.00%	100.00%
Total	**64.54%**	**35.46%**	**100.00%**

In the Rwandan context, the entry-age at P1 is at 6 years old for Primary one (P1); implying that a P3 child normal chronological age is 8 to 9 years old. The data in Table 3.2.4 indicates that for numeracy, those with 8 years old are the ones meeting the benchmark at a rate of 80%. However, overall there is no specific performance trend that can be associated with age.

3.1.2.5 Comparison of performance of P3 Students per gender and subject

P3 students who participated in the survey did Numeracy and English tests. They were both Female and Male. It is therefore interesting to see the extent of variation in performance across subject and gender. Table 3.20 presents details of P3 performance per gender and subject.

Table 3.20: Comparison of performance of P3 Students per gender and subject

Subjects	Does not meet Benchmark	Meet Benchmark	Total
⊟ **P3**	**64.54%**	**35.46%**	**100.00%**
⊟ **ENGLISH**	**89.92%**	**10.08%**	**100.00%**
Female	92.50%	7.50%	100.00%
Male	87.31%	12.69%	100.00%
⊟ **NUMERACY**	**39.06%**	**60.94%**	**100.00%**
Female	41.46%	58.54%	100.00%
Male	36.64%	63.36%	100.00%
Total	**64.54%**	**35.46%**	**100.00%**

In accordance with the data in Table 3.20, the performance of P3 students was generally poor in English and relatively better in Numeracy. Notably though, male students display better proportions than female in both English and Numeracy. For instance, on the other hand, numeracy, male students met the benchmark at 63.36%, whereas Female met the benchmark at 58.54%.

3.1.2.6 Comparison of Performance of P3 students per province

P3 candidates who took part of the survey were from the City of Kigali and the four other Provinces of Rwanda. Hence, it is essential to have a look into the discrepancy of P3 students' performance by subject and geographical location as given out in Table 3.21.

Table 3.21: Comparison of Performance of P3 students per province

Subjects	Does not meet Benchmark	Meet Benchmark	Total
P3	**64.54%**	**35.46%**	**100.00%**
ENGLISH	**89.92%**	**10.08%**	**100.00%**
City of Kigali	67.74%	32.26%	100.00%
Eastern Province	95.81%	4.19%	100.00%
Northern Province	93.46%	6.54%	100.00%
Southern Province	86.63%	13.37%	100.00%
Western Province	92.38%	7.62%	100.00%
NUMERACY	**39.06%**	**60.94%**	**100.00%**
City of Kigali	19.35%	80.65%	100.00%
Eastern Province	52.10%	47.90%	100.00%
Northern Province	38.82%	61.18%	100.00%
Southern Province	29.85%	70.15%	100.00%
Western Province	43.54%	56.46%	100.00%

The analysis of the data portrayed in Table 3.21 informs that although P3 candidates did not do well in English in across all provinces. Candidates from the City of Kigali outperformed those from the rest of the country in the subject as 32.26% met the benchmark compared to other low percentages from other provinces. In numeracy, P3 candidates from the City of Kigali performed well at 80.65%, followed by southern provinces by 70.15%. The last province in numeracy is the Eastern Province with 47.90% of P3 candidates who meet benchmarks in numeracy.

3.2 P6 Key findings

For P6 Literacy test, 40.90% Male students met the benchmark compared to 36.22% females students who met grade level benchmark. In addition, 33.24% of the P.6 male students met the benchmark in Numeracy compared to 31.05% females.

3.2.1 Distribution of P6 participants by subject and gender

Participants to this survey were Primary Six (P6). The survey targeted key subjects; i.e. English and Numeracy Table 3.22 provides a detailed distribution of P6 participants of LARS IV by subject and gender.

Table 3.22: P6 LARS IV Participants by subject and gender

Description		Student's Gender		
level	Subject	Female	Male	Total
P6	ENGLISH	381	379	760
	NUMERACY	380	376	756
P6 Total		761	755	1516
Description		Student's Gender		
level	Subject	Female	Male	Total
P6	ENGLISH	50.13%	49.87%	100.00%
	NUMERACY	50.26%	49.74%	100.00%
P6 Total		50.20%	49.80%	100.00%

The data in Table 3.22 indicate that P6 females were slightly greater compared to males. Females represented 50.13% and 50.26% in English and Numeracy respectively.

3.2.2 Performance of P6 Students in English

In this survey, P6 students from 111 schools undertook the English test. In total 760 responses were collected. Figure 4.2 illustrates the details on these P6 students' performance.

Figure 3.3: Performance of P6 Students in English

Low	Mean	Mode	High
6.67%	60.06%	76.67%	96.67%

Benchmark

Meet Benchmark	Does not meet Benchmark
38.55%	61.45%

Standard Variation	Responses	Number of Schools
6.09	760	111
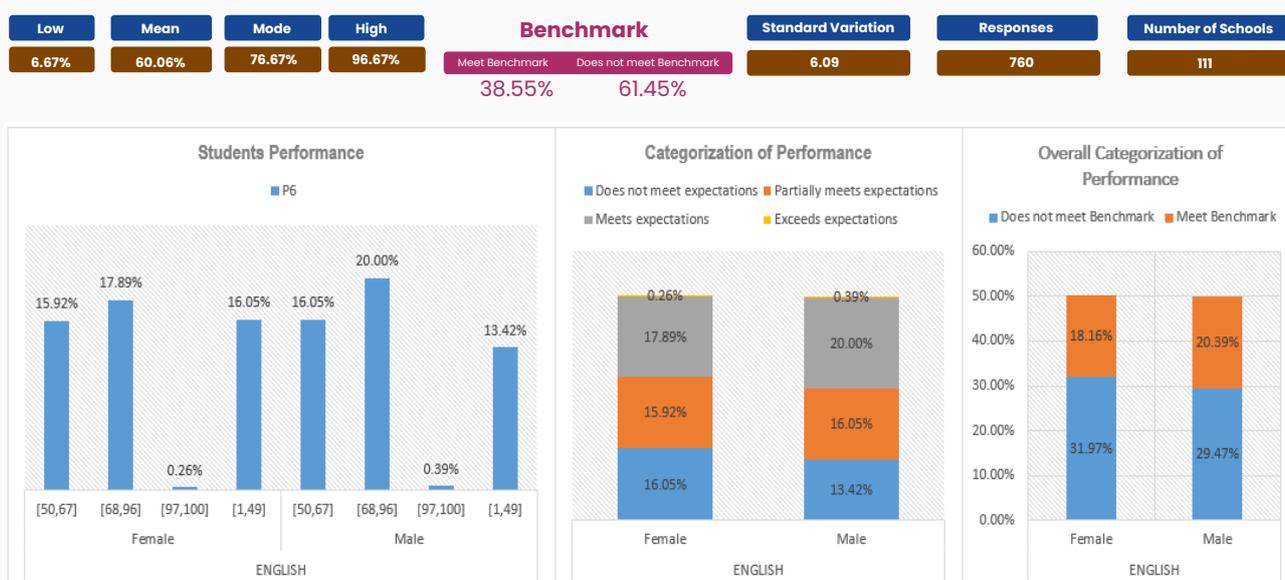
The Figure 3.3 indicates that the P6 students' mean performance in English was relatively good; i.e. 60.06%. However, due to the variation in scores as indicated by the Standard

Deviation (SD= 6.09), only 38.55% of the candidates (17.89% Female and 20.00% Male) met the set benchmark.

The average Primary six (P6) students' performance in English was relatively good; according to the findings from the respondents and focus group discussions. This can be attributed to the fact that the language of instruction in upper primary is English. Thus, students have progressively improved their English understanding by the time they reach P6. However, there was high variation in terms of individual students' performance, which is reflected in the low share of students, who met the benchmark. Respondents attributed this to limited availability of teaching and learning resources as well as low capacity of teachers in English Language; it was stated that even though in-service teachers receive capacity building in English Language Proficiency; the training period is too short to enable teachers acquire the proficiency needed for instruction.

3.2.3 Performance of P6 Students in Numeracy

P6 students from 111 schools countrywide who took part in the survey also did a numeracy test. Figure 3.4 provides the analysis of the 756 responses harvested from the test.

Figure 3.4: Performance of P6 Students in Numeracy
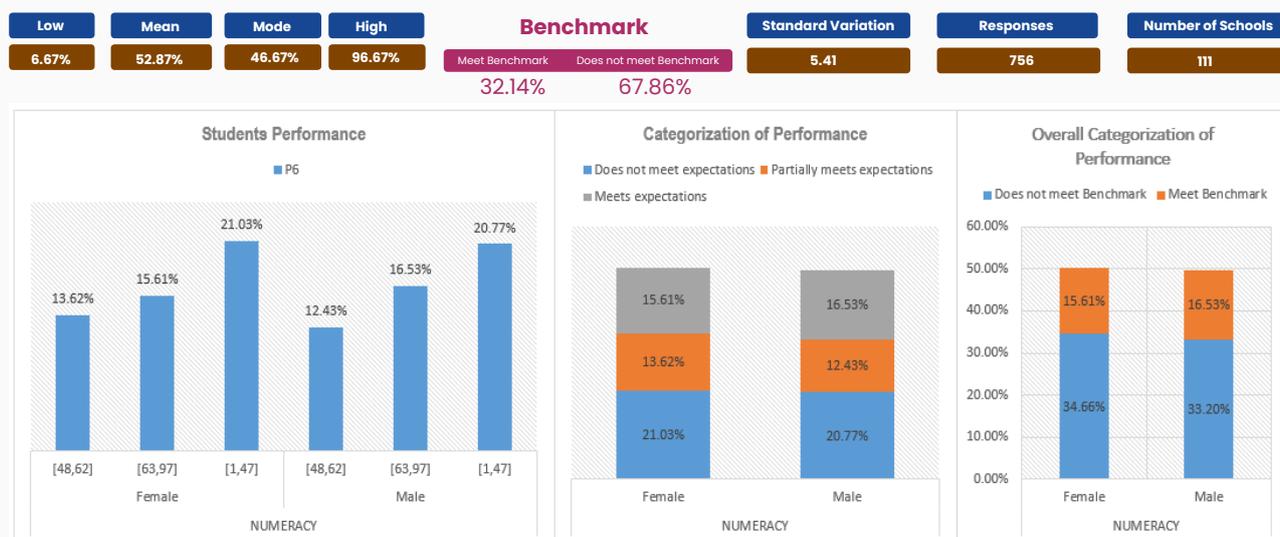
The Figure 3.4 indicates that the average P6 students' performance in numeracy was at 52.87%. Nonetheless, only 32.14% of the candidates (15.61% Female and 16.53% Male) met the benchmark.

Information collected from interviews and focus groups reveals that schools have more teaching and learning resources for numeracy compared to other subjects, thus contributing to a better performance in this area. Another factor is that many schools as well as parents/caregivers place emphasis on Math and Sciences. With regards to the low proportion of students who met the benchmark; respondents mentioned various reasons. This includes the heavy curriculum where teachers rush through to be able to complete the program, this leads to a low level of understanding among students for some topics and eventually to low performance in national wide assessments.

It was also stated that big class size was also a cause to under performance; respondents stated that before Covid-19 outbreak, some classes had at least 70 students per shift where it was difficult for teacher to have effective teaching.

3.2.4 Comparison of performance of P6 Students per subject and gender

In this survey, P6 students sat for English and Numeracy tests. Table 3.23 provides a distinctive look into the difference in performance per subject and gender.

Table 3.23: Comparison of performance of P6 Students per subject and gender

Subjects	Does not meet Benchmark	Meet Benchmark	Total
P6	**64.64%**	**35.36%**	**100.00%**
ENGLISH	**61.45%**	**38.55%**	**100.00%**
Female	63.78%	36.22%	100.00%
Male	59.10%	40.90%	100.00%
NUMERACY	**67.86%**	**32.14%**	**100.00%**
Female	68.95%	31.05%	100.00%
Male	66.76%	33.24%	100.00%
Total	**64.64%**	**35.36%**	**100.00%**

The Table 3.23 illustrates that although generally P6 students poorly met the benchmarks in both English and Numeracy, male students demonstrated a relatively higher score compared to their female counterparts. For instance, 40.90% Male met the benchmark in English compared to Females with 36.22% who met. Similarly, P6 Male students met the benchmark in Numeracy at a rate of 33.24% whereas P6 Female students who met the benchmark stood at 31.05%.

3.2.5 Comparison of Performance of P6 students per province

P6 candidates in this survey were selected countrywide and did English and Numeracy tests. Hence, it is vital to assess the variability in terms of performance by subject and province. Figure 3.5 present the details.
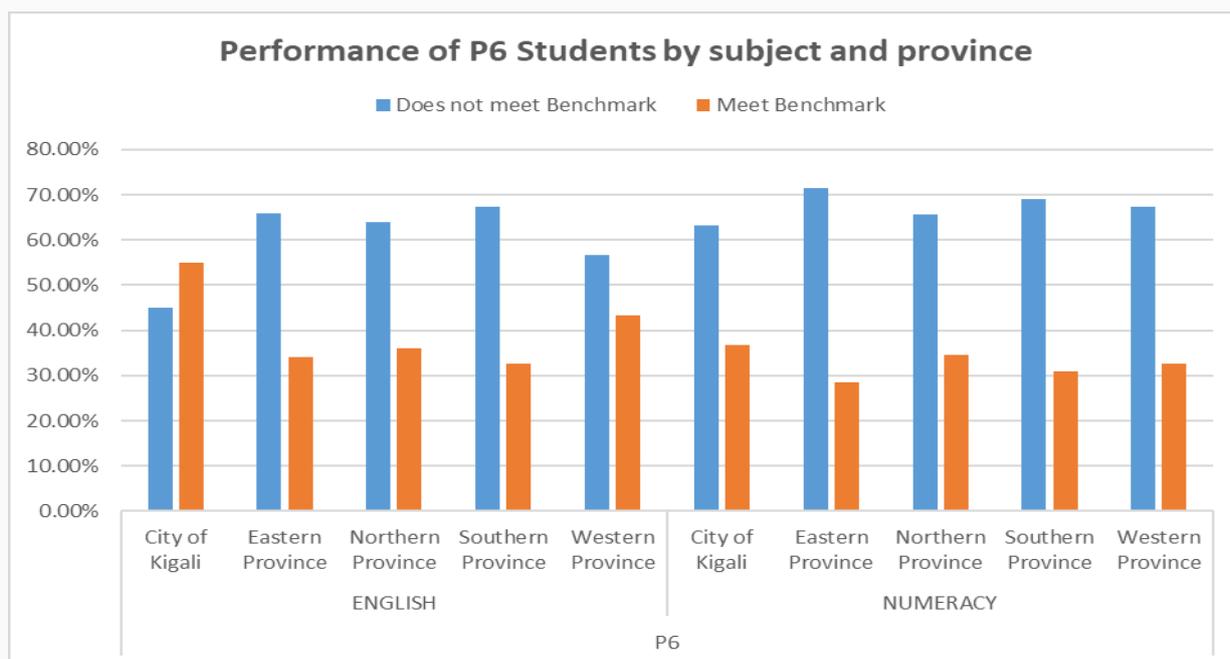
As portrayed in the above figure, the proportions of P6 students who met the benchmarks in English and Numeracy were generally low, The City of Kigali performed better than other provinces in both Literacy and Numeracy. The language factor might have played a big role, as students in cities tend to do well in English but not in Numeracy in which they were tested in Kinyarwanda. The reverse is relatively true with rural children who tend to understand Kinyarwanda- the language in which they were tested in Numeracy.

3.3 S3 K ey Findings

For secondary school (S3), 42.78% of the student met the benchmark in the Literacy (English test) and 41.51% of the students met the benchmark in the numeracy test while 43.43% met the benchmark in science test.

The quality of the assessment tools was also analyzed in view of what they were meant to measure using different Models. Generally, IRT implementation showed that the model with guessing parameter, the 3pL model, provided the better fit to the data at hand. Although few items showed unexpected characteristics, especially on S3 Science, the tests were generally balanced and were able to discriminate between high ability and low ability learners. The tests were generally internally consistent and reliable. The Cronbach's alpha statistic for the S3 Science test was also in the acceptable range, which suggests adequate internal consistency across the test item. Overall, the estimated test thresholds were below the currently expected grade level benchmarks.

Although students from urban schools were more likely to score higher than students from rural, the difference was not statistically significant. After adjusting for school effect, the results show that school location effect (rural /urban) was not significant (ICC=0.05). There is a significant difference in the students' performance on S3 numeracy test between the schools (ICC=0.18). This is not the case between rural and urban schools. This

implies that school-level factors like school leadership, quality of teacher and resources availability and utilization determined performance on learning.

Gender and age effects also remained significant. Male students significantly scored about 5% points more than female students. In addition, students who were considered older vis a vis the grade levels there were in, performed relatively low compared to students whose age range fit their respective classes.

In terms of students' economic backgrounds, students from households in the 4th (higher) and 5th (highest) quintiles performed better than students from any other quintiles after controlling for both the school effect and student-level factors' effects. This suggests that students from relatively richer families perform better than those from poor families.

3.3.1 Distribution of S3 Participants by Subject and Gender

S3 Participants to this survey were tested in English, Numeracy and Science subjects; Table 3.24 provides a detailed distribution of P6 participants of LARS 2021 by subject and gender.

Table 3.24: LARS IV S3 Participants by subject and gender

Description		Student's Gender		
level	Subject	Female	Male	Total
S3	ENGLISH	383	386	769
	NUMERACY	383	383	766
	SCIENCE	383	386	769
S3 Total		1149	1155	2304
Description		Student's Gender		
level	Subject	Female	Male	Total
S3	ENGLISH	49.80%	50.20%	100.00%
	NUMERACY	50.00%	50.00%	100.00%
	SCIENCE	49.80%	50.20%	100.00%
S3 Total		49.87%	50.13%	100.00%

The Table 3.24 indicates that 769 S3 students were tested in English, 766 in Numeracy and 769 in Science. The majority of participants in S3 were Males representing 50.13%.

3.3.2 Performance of S3 Students in English

In the present survey, S3 students from 109 schools did the set English test. From a collection of 769 responses, an analysis was done and the Figure 3.6 presents the results.

Figure 3.6: Performance of S3 Students in English

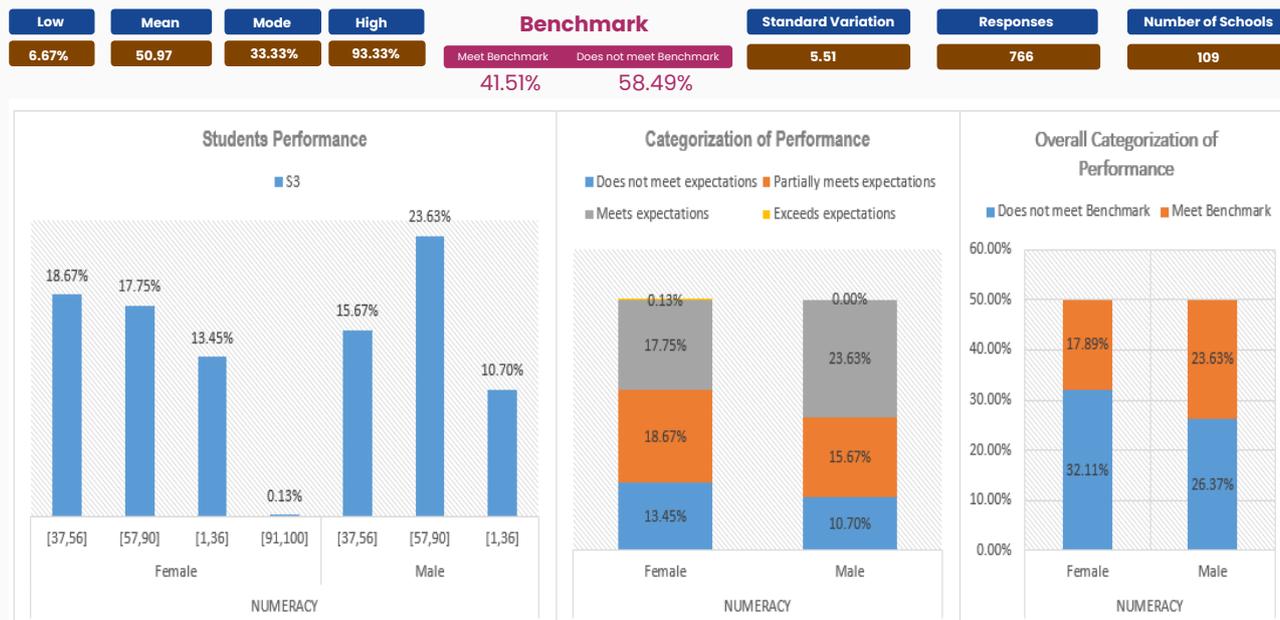| Low	Mean	Mode	High	Benchmark		Standard Variation	Responses	Number of Schools
10.00%	55.25%	46.67%	96.67%	Meet Benchmark	Does not meet Benchmark	5.67	769	109
				42.78%	57.22%			
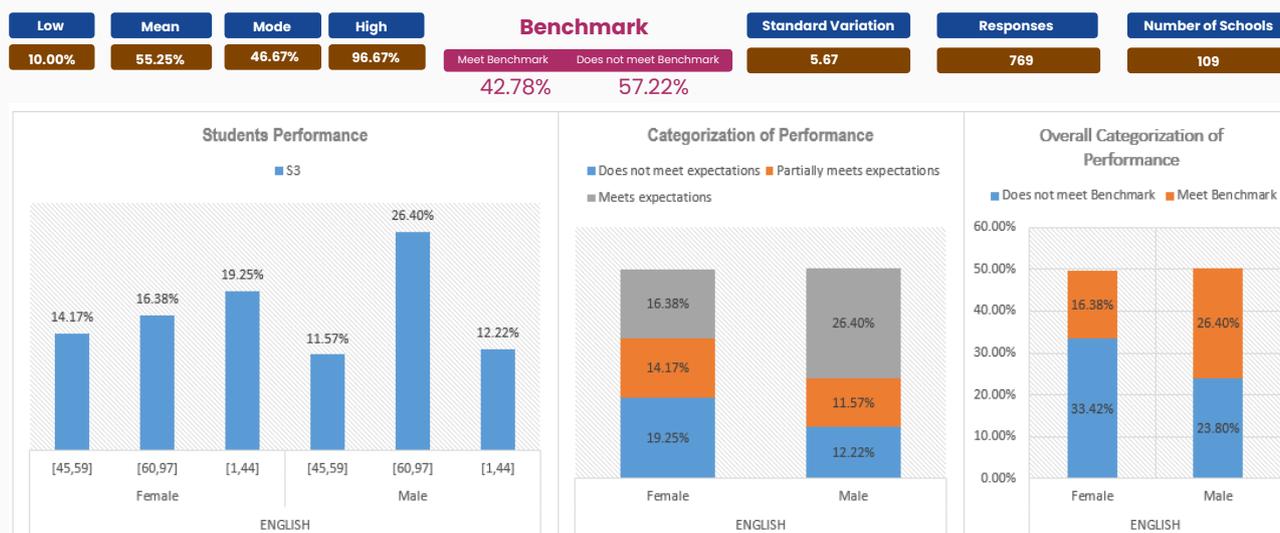
The Figure 5.2 illustrates that the mean performance of S3 Students in English stood at 55.25%. The biggest challenge has been to reach the set benchmark because only 42.78% of the participants (16.38% Female and 26.40%) achieved it.

According to the respondents, the fair performance in English Language could be attributed to the fact that English is a medium of instruction right from upper primary onwards hence by the time leaners progress to Senior three (S3); they are able to perform better in English. However, there was high discrepancy where many students failed to attain the benchmark. Respondents attributed this failure to insufficient teaching and learning resources as well as low capacity of teachers in English Language; it was stated that even though in-service teachers receive capacity building in English Language Proficiency; the training period is too short to enable teachers acquire the proficiency needed for instruction.

3.3.3 Performance of S3 Students in Numeracy

As planned, selected S3 students from 109 schools did the set numeracy test. In total, 766 responses were brought together and analysed. The results from the analysis are presented in the figure 3.7.

Figure 3.7: Performance of S3 Students in Numeracy

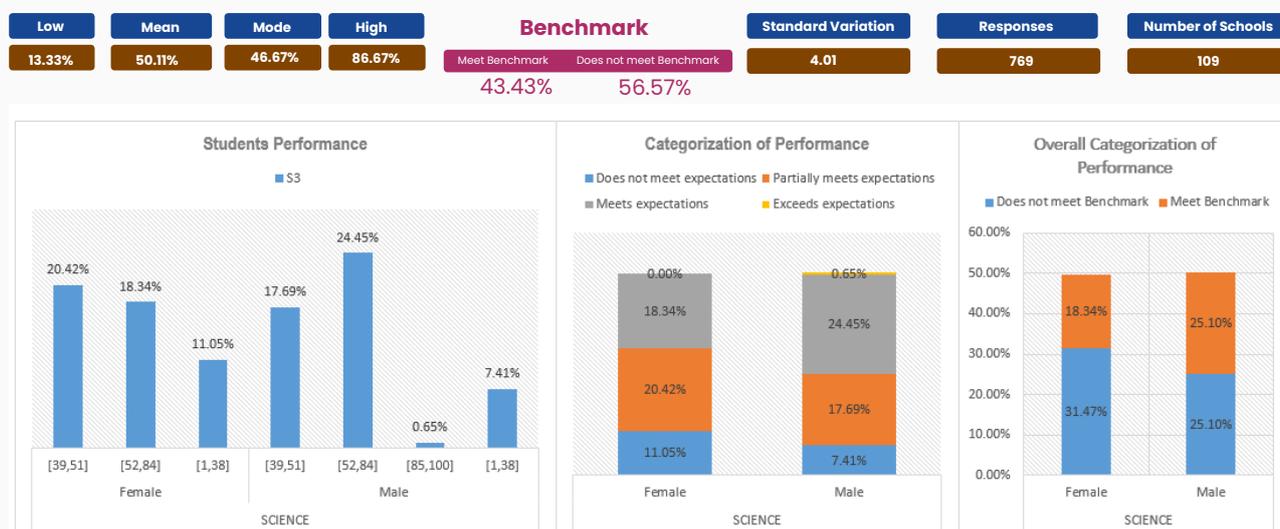| Low	Mean	Mode	High	Benchmark		Standard Variation	Responses	Number of Schools
6.67%	50.97	33.33%	93.33%	Meet Benchmark	Does not meet Benchmark	5.51	766	109
				41.51%	58.49%			

The overall analysis of the data in Figure 3.7 shows that the computed mean performance was 50.97% and 41.51% of the participants (17.75% female and 23.63% male) met the performance benchmark.

Among other factors, respondents attributed this performance to the wide curriculum with very large course contents where some teachers rush through to complete the syllabus; hence, students cannot comprehend well all the content eventually leading to low performance in the assessments.

3.3.4 Performance of Senior Three (S3) Students in Science

S3 students' performance in science was also measured. To do so, candidates from 109 schools took part of the set test. Figure 3.8 gives a summary of the results.

Figure 3.8: Performance of S3 Students in Science

Low	Mean	Mode	High	Benchmark		Standard Variation	Responses	Number of Schools
13.33%	50.11%	46.67%	86.67%	Meet Benchmark	Does not meet Benchmark	4.01	769	109
				43.43%	56.57%			

The data in Figure 3.8 indicate that S3 students performed relatively good in science. This is justified by the mean performance of 50.11%. Nonetheless, of the candidates who sat for the test, 43.43% met the benchmark. This proportion is made of those who met actual expectations (18.34% Females and 24.45% Males) and a meagre proportion of 0.65% Males who exceeded the expectations.

Respondents frequently mentioned large class sizes as one of the major causes of underperformance in both mathematics and science. The large numbers posed a big class management challenge (especially prior to the COVID-19 outbreak) and more so made it difficult for some teachers to follow up on students learning needs. The result is that students are seen to lose motivation for the subject and learning outcomes drop.

3.3.5 Comparison of performance of S3 Students per subject and gender

In this survey, selected S3 students attempted three tests; i.e., English, Numeracy and Science. It is therefore paramount to see their performance trends in terms of subject and gender. Table 3.25 give the details.

Table 3.25: Comparison of performance of S3 Students per subject and gender

Subjects	Does not meet Benchmark	Meet Benchmark	Total
S3	57.42%	42.58%	100.00%
ENGLISH	57.22%	42.78%	100.00%
Female	67.10%	32.90%	100.00%
Male	47.41%	52.59%	100.00%
NUMERACY	58.49%	41.51%	100.00%
Female	64.23%	35.77%	100.00%
Male	52.74%	47.26%	100.00%
SCIENCE	56.57%	43.43%	100.00%
Female	63.19%	36.81%	100.00%
Male	50.00%	50.00%	100.00%
Total	57.42%	42.58%	100.00%

The analysis of the data portrayed in Table 3.25 indicates that generally S3 students' performance in English, Numeracy and Science was below the benchmark. Nevertheless, Female students have had very low rates in meeting the benchmarks compared to Male ones across all subjects. The gap between male and female students in terms of meeting the benchmark is widest in English where only 32.9% female students met the benchmark while 52.59% male students met the benchmark. Similar gender gaps in performance are observed in other subject and across all grade levels.

3.3.6 Performance of S3 students per province

As per the design of this survey, S3 students were selected nationwide and were subjected to English, Numeracy and Science tests. The Figure 3.9 provides a look into variation of these S3 students per subjects and Province.

Figure 3.9: Performance of S3 students per province

Subjects	Does not meet Benchmark	Meet Benchmark	Total
S3	**57.42%**	**42.58%**	**100.00%**
ENGLISH	**57.22%**	**42.78%**	**100.00%**
City of Kigali	33.87%	66.13%	100.00%
Eastern Province	59.15%	40.85%	100.00%
Northern Province	64.47%	35.53%	100.00%
Southern Province	60.43%	39.57%	100.00%
Western Province	54.41%	45.59%	100.00%
NUMERACY	**58.49%**	**41.51%**	**100.00%**
City of Kigali	54.84%	45.16%	100.00%
Eastern Province	53.99%	46.01%	100.00%
Northern Province	65.13%	34.87%	100.00%
Southern Province	51.61%	48.39%	100.00%
Western Province	64.53%	35.47%	100.00%
SCIENCE	**56.57%**	**43.43%**	**100.00%**
City of Kigali	54.84%	45.16%	100.00%
Eastern Province	50.61%	49.39%	100.00%
Northern Province	59.87%	40.13%	100.00%
Southern Province	59.36%	40.64%	100.00%
Western Province	56.86%	43.14%	100.00%

The data in Figure 3.9 indicates that S3 students did not do well in the administered tests, as most did not have 50% of the student meeting the benchmark.

According to qualitative interviews from head teachers and teachers, some of the factors that influenced students' performance on LARS 2021 include:

- Teacher Quality- especially teachers of English in foundation classes, large class sizes -sometimes over 70 students per class during pre-COVID 19, long distance from Schools and gradual loss of instructional time and lack of quality teaching and learning resources.

- The timing of LARS 2021 rollout was also another factor indicated to have influenced student scores –especially that the rollout was done about two months after school re-opening following almost a year of school closure due to COVID-19.

4. Recommendations

In views of the factors that affect learning identified in this report, some of the suggested recommendations include:

4.1. Policy making level

- Teachers' motivation: When the teachers' welfare is improved and they are facilitated to satisfy their basic needs; this will motivate them to concentrate on teaching and learning, which will lead to improved performance of learners. In addition, there is a need to put in place a structured capacity building plan for teachers especially in English, which is the language of instruction. This could be developed in a modular progression (starting with a manageable cohort of teachers and expanding to greater reach). This will allow for high quality English skills development that can have a spill over effect.

- Review of Competency-Based Curriculum (CBC): The CBC should be revised to focus on building children's foundational skills and teachers should be oriented towards that skill building rather than simply making it through to the end of the curriculum. Respondents urged that the content of CBC should be revised to make its implementation more feasible in classroom. It was pointed out that during the CBC implementation; the enormous curriculum contents cannot match with the scheme of work. Specifically, teachers recommended revising the English curriculum for Primary level as it does not clearly give the English literacy, grammar and general knowledge of language relevant for this level. To this end, the implementation of the competency based-curriculum could be evaluated in order to address the gaps and challenges that are apparent in its implementation.

- Teaching and learning materials: Teachers recommended for provision of sufficient teaching and learning materials for all subjects, especially English learning resources for primary schools to support the implementation of the recent language of instruction in lower primary. More so, the learning materials provided must be up to date and they should be contextualised to the learners' context.

- Review teacher workloads: The teachers urged that students' performance is low because they do not have time to prepare lessons. In focus groups and discussions during this survey, teachers proposed to the policy makers to preserve one day per week (Journéee pédagogique) for every teacher to allow enough time for preparation for lessons for the whole week, mark the formative assessment and self-evaluation.

- Establish Community wide support systems for enhanced learning and Promote Community wide learning approaches: The participants suggested that policy should encourage community awareness on its roles and responsibilities with respect to children's education and discipline. Some students have low performance because of lack of values that could be cultivated at home or in community. It may call for wider community support mechanism as some parents (a significant number) have significant limitations when it comes to parenting and would benefit from collective support mechanisms from the community to which they belong.

- ICT in Education policy should be sustainably reinforced to expand opportunities for both learners and teachers to access resources that will promote quality teaching and learning during formal as well as informal schooling processes. The Rwandan ICT teachers' essentials framework should be made mandatory (immediately for pre-service teachers and gradually for in service teachers) to enable them to develop the minimum ICT in education competences. This will go a long way to mitigate gaps in teaching and learning resources that can be addressed through ICT based solutions. This should be accompanied with strengthening the necessary infrastructure and internet connectivity that should be monitored strongly to guarantee implementation.

4.2. School Level

- Put great emphasis on early grades of Primary: There is need to focus on the learners in early grades to equip them with foundational skills. Research has shown that the knowledge not acquired in the first years of schooling cannot easily be recovered in subsequent school years. This can thus have indirect effect on increasing dropout and repetition rates among students. School leaders must avoid the tendency of placing/allocating the low performing teachers in the low grade levels assuming that the course contents are easier. If the mind-set of allocation of the weak teachers to early grades continues, a significant skills gap will be observed at upper grades and secondary levels.

- Easy access to teaching and learning materials: Schools must allow teachers and students to easily access teaching and learning materials. Schools must have libraries, bookshelves, teacher guides, students' books, etc. The teachers must also be trained on how to generate the teaching and Learning Using Locally Available Resources (TALULAR) so that the teaching and learning methods can reflect the real life of student. The school must also facilitate teachers to have sufficient and adequate teaching aids. Where the schools have been provided with computers and internet connectivity, school leaders should ensure that teachers and children can access these facilities equitably.

- Continuous Professional Development (CPD):   The school must implement continuous professional development of teachers in their subjects through communities of practices organized at school level. Teachers should be trained on topics like classroom management, Specific teaching methods for the subject,

etc. School leaders must put in place the continuous coaching programs of the teachers. Strong partnership should be reinforced with different stakeholders with teacher professional development interventions and school leaders encouraged to support such interventions to generate meaningful impact from them.

- Students conduct at school: School leaders, teachers and parents must work together to put in place instructions and rules that direct students with an aim to achieve good behaviour and performance.

- Gender responsive teaching and learning strategies need to be prioritized within the teacher training and continuous professional development. It is evident that there is a gender gap in all the subjects and at all levels involved in this assessment. Family and whole community engagement strategies will need to be identified to garner significant support towards bridging this critical gap which remains lingering despite all the efforts declared towards gender equity.

4.3 Community Level

- Communitywide mobilization should be undertaken for communities to act collectively around supporting children's education including developing mutually supportive mechanisms to address parenting issues affecting individual families which can have a spill over effect with negative consequences to whole communities resulting from inaction

- Support teaching and learning process: Parents/ caregivers must understand their roles in teaching and learning process. They must monitor the progress of the children at schools; helping them to do their assignments, assist them to achieve their learning goals and support in remedial activities where possible. In addition, parents and caregivers have to understand that they must provide necessary materials to their children and monitor how they are used. The School General Assembly committees should be empowered to sensitise parents to complement school by creating home conditions that foster learning.

- Children rights: The community must be systematically sensitised to understand children rights. Furthermore, the community has to understand that students' learning process must be pursued in and beyond school settings to homes where children spent spend most of their time. The School General Assembly Committees should actively contribute to this intervention.

5. Strategies put in place to improve learning outcomes

Though LARS focuses on Primary 3, Primary 6 and Senior 3; other associated indicators which contribute to the improvement of learning outcomes for all levels are measured through annual school census: the 2020/21 education statistics shows that 2,729,116 pupils were enrolled in Primary and 521,632 pupils in lower secondary.

- To address the issue of overcrowding in primary schools, the Rwandan education sector recorded a substantial increase in number of classrooms for primary education from 34,468 in 2019 to 46,604 classrooms in 2021; hence the decrease in number of students using one classroom from 73 to 59. In addition, qualified teachers were recruited and the number of teaching staff for primary increased from 43,878 in 2019 to 60,666 in 2021.

- Furthermore, through Umwalimu Sacco, teachers have access to a variety of saving and loans schemes at low interest rate (11%) to enable them set up small income generating projects that supplement their revenues. The government also increased the salary for primary and secondary teachers.

- Students' textbooks are being adapted into inclusive and engaging digital learning materials in the form of "edutainment" animated episodes to improve the learning environment in classroom and beyond.

- Rwanda Basic Education Board started the development of innovative instructional materials such as scripted-lessons for Mathematics and Science subjects in Rwandan schools to improve the delivery of science and math teaching. At total of 888 scripted primary school lessons of Mathematics and Science and 1,108 secondary school lessons of Mathematics and Science have been developed and delivered to schools.

- Rwanda Basic Education Board intends to establish a regional STEM center to advance the delivery of math and science instruction in schools and to continue distributing textbooks in schools to achieve a 1:1 textbook-student ratio in P1-P6 Math, English and Kinyarwanda.

- To advance teachers' professional careers, Rwanda Basic Education Board in collaboration with the University of Rwanda, College of Education trained 2,824 Primary and Secondary school teachers on Pedagogy, Inclusive education, measurement and Evaluation and self-awareness, attitudes and values.

- In an effort to improve English Proficiency in Rwandan Primary schools, Rwanda Basic Education Board trained 9,822 teachers in Western Province.

===== END =====