THE NATIONAL EXAMINATIONS COUNCIL OF TANZANIA

STANDARD TWO NATIONAL ASSESSMENT 2019

Report on Reading, Arithmetic and Writing Assessment

Prepared by
The National Examinations Council of Tanzania
P. O. Box 2426
Dar es Salaam

MAY 2020

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Dr. Charles E. Msonde
EXECUTIVE SECRETARY

Table of Contents

List of Tables x

List of Abbreviations xii

Executive Summary xiv

CHAPTER ONE: CONTEXTUALISING THE ASSESSMENT 1

1.1 Introduction 1

1.2 Education Policy Context 1

1.3 Primary Education in Tanzania 1

1.4 Background to the 3Rs Assessment 2

1.5 Overview of Reading Skills 4

1.6 Overview of Arithmetic Skills 7

1.7 Overview of Writing Skills 9

CHAPTER TWO: METHODOLOGY 11

2.1 Introduction 11

2.2 Population 11

2.3 Sampling Criteria 13

2.4 Replacement Criteria 14

2.5 Calculating Sample Size and Rationale 15

2.6 Verifying Sampled Schools 16

2.7 Final Sample Count 16

2.8 Marking and Data Capturing 17

2.9 Data Cleaning 17

2.10 Data Weighting 18

2.11 Data Analysis 18

2.12 Equating Study 19

2.13 Tools for Assessing Reading, Writing and Arithmetic 21
2.14 Appointment and Training of Trainers 21
2.15 Appointment and Training of Assessors 22
2.16 Limitations 23
CHAPTER THREE: RESULTS 24
3.1 Introduction 24
3.2 Benchmarks and Annual Targets in Reading and Arithmetic 24
3.3 Reading Skills Assessment Results 25
3.3.1 National Mean Scores on Reading Subtasks 25
3.3.2 Proportion of Pupils as per Tanzania Benchmarks on Reading Sub-tasks 26
3.3.3 Annual Target and Actual Results for Reading Sub-task Zero Scores 28
3.3.4 Categories of Readers 29
3.3.5 Distribution of Scores on Reading Subtasks 31
3.3.6 Performance of Pupils on Reading Sub-tasks by Gender 35
3.3.7 Performance of Pupils by Location (Rural versus Urban) 35
3.3.8 Performance of Pupils on Reading Sub-tasks by Regions 37
3.3.9 Analysis of Item Difficulty in Reading Skills Sub-tasks 40
3.4 Arithmetic Skills Assessment Results 41
3.4.1 National Mean Scores on Arithmetic Sub-tasks 42
3.4.2 Distribution of Scores in Arithmetic Sub-tasks 43
3.4.3 Tanzania National Benchmarks for Arithmetic 43
3.4.4 Proportion of Pupils who Scored Zero in Arithmetic 45
3.4.5 Categories of Performers in Arithmetic Sub-tasks 45
3.4.6 Distribution of Arithmetic Scores on Arithmetic Sub-tasks by Gender 47

3.4.7 Arithmetic Scores by Region 48
3.4.8 Analysis of Item Difficulty in Addition and Subtraction Sub-tasks 52
3.5 Analysis of Item Difficulty in Missing Numbers and Word Problems Sub-tasks 53
3.6 Writing Skills Assessment Results 54
3.6.1 National Mean Scores on Writing 55
3.6.2 Categories of Performers in the Writing Sub-task 56
3.6.3 Proportion of Pupils who scored Zero in Writing Skills 58
3.6.4 Distribution of Scores on Writing Sub-tasks 58
3.6.5 Distribution of Scores in Writing Sub-tasks by Gender 60
3.6.6 Performance of Pupils on the Writing Assessment by Region 62
3.6.7 Analysis of Item Difficulty in the Writing Skills Sub-tasks 64
3.7 Overall Regional Rank on the 2019 3Rs Study 66
3.8 Availability of Teaching and Learning Resources 66
3.9 Teaching and Learning Environment 68
3.10 Factors Affecting the Teaching and Learning of 3Rs 69
CHAPTER FOUR: CONCLUSION AND RECOMMENDATIONS 71
4.1 Introduction 71
4.2 Conclusion 71
4.3 Recommendations 72
References 74
Appendix 1: Regional Performance on the ORF Subtask 76
Appendix 2: Regional Performance on the Reading Comprehension Subtask 77
Appendix 3: Regional Performance on the Addition and Subtraction Subtasks 78
Appendix 4: Regional Performance on the Missing number subtask 79

Appendix 5: Regional Performance on the Solving Word Problem Subtask.....80

Appendix 6: Regional Performance on the Writing subtask.....81

Appendix 7: Overall Regional Rank on the 2019 3R Study.....82

Appendix 8: Trends in Regional Performance between 2015/16 - 2019.....83

Appendix 09: Questionnaire for Head Teachers (Heads of Schools).....89

Appendix 10: Oral Reading and Oral Arithmetic Assessment Tool 94

Appendix 11: Oral Reading and Oral Arithmetic Assessment Scale 98

Appendix 13: Writing Skills Assessment Tool 110

List of Figures

Figure 1: Percentages of pupils' scoring at the Tanzanian benchmarks for the two reading subtasks 27

Figure 2: Percentages of pupils who scored zero in the two reading sub-tasks. 28

Figure 3: Proportion of readers by category and year 30

Figure 4: Distribution of pupils' scores in the oral reading fluency sub-task..... 31

Figure 5: Distribution of pupils' scores on reading comprehension sub-task 32

Figure 6: Distribution of reading comprehension scores by gender..... 33

Figure 7: Proportion of pupils who scored zero in reading sub-tasks by locality 34

Figure 8: Regional performance on Reading Comprehension..... 38

Figure 9: Regional percentages of pupils who met the RC Benchmark..... 38

Figure 10: Regional performance in Oral Reading Fluency 38

Figure 11: Regional distribution of scores for Oral Reading Fluency sub-task by gender 39

Figure 12: Regional distribution of scores for the Comprehension sub-task by gender 39

Figure 13: Percentages of correct attempts on each word in the passage 40

Figure 14: Percentages of correct responses to each question in the RC sub-task 41

Figure 15: Distribution of scores for Arithmetic sub-tasks..... 43

Figure 16: Categories of performers in arithmetic sub-tasks 46

Figure 17: Distribution of scores on Addition and Subtraction by Gender..... 47

Figure 18: Distribution of scores on Word Problems by Gender 48

Figure 19: Distribution of scores for the Missing Number sub-task by gender 48

Figure 20: Proportion of pupils' scoring at the national benchmark 50

Figure 21: Pupils' performance on the Missing Numbers sub-task by region and gender 51

Figure 22: Pupils' performance on Addition and Subtraction level II sub-task by region and gender 51

Figure 23: Pupils' performance on the Word Problem sub-task by region and gender 51

Figure 24: Percentage of correct pupil responses to Addition and Subtraction (Level II) sub-task 52

Figure 25: Percentage of pupils' correct response to the Missing Numbers sub-task 54

Figure 26: Percentage of correct responses to the Word Problems sub-task 54

Figure 27: Categories of performers in the writing sub-task 57

Figure 28: Distribution of scores for the writing sub-task by gender 57

Figure 29: Distribution of pupils' scores on the word writing sub-task 58

Figure 30: Distribution of pupils' scores on the sub-task of identifying capital and small letters 59

Figure 31: Distribution of scores on the sub-task of copying a passage and using appropriate punctuation marks 60

Figure 32: Performance on the word writing sub-task by gender 61

Figure 33: Percentage of pupils' performance on the task of identifying small letters by gender 61

Figure 34: Distribution of Scores on the sub-task requiring pupils to copy a passage and use appropriate punctuation marks 62

Figure 35: Mean scores on the Writing Sub-task by Region 63

Figure 36: Distribution of Scores on Writing Sub-tasks by Gender 63

Figure 37: Percentages of pupils' correctly written words on the Words Writing sub-task 64

Figure 38: Percentage of correct responses in underlining small lettered words. 65

Figure 39: Percentage of correctly copied and punctuated passage 65

List of Tables

Table 1: Reading Assessment Tool Sub-tasks 6

Table 2: Arithmetic Assessment Tool Sub-tasks 8

Table 3: Writing Assessment Tool Sub-task 10

Table 4: Sample Methodology Summary 12

Table 5: Relationship between Sampled and Non-Sampled Schools 13

Table 6: Reasons for School Replacement 14

Table 7: Relationship between first entry data and cleaned data 18

Table 8: Performance against the EPfR indicators of EGRA/EGMA 19

Table 9: Mean Oral Reading Fluency Scores by Passage 20

Table 10: Mean Equated Oral Reading Fluency Scores by Passage 20

Table 11: National Benchmarks and Annual Target for Reading and Arithmetic for Standard II Pupils 24

Table 12: National Mean Scores on Oral Reading Fluency Sub-tasks 26

Table 13: Proportion of Pupils at the Tanzanian Benchmarks for Reading Sub-tasks 27

Table 14: Annual Target and Actual Results for Kiswahili Reading Sub-task Zero Scores 28

Table 15: Proportion of Readers by Category and Year 30

Table 16: Distribution of Comprehension Scores by Gender 33

Table 17: Proportion of Pupils Scoring Zero on Reading Sub-tasks by Locality 34

Table 18: Proportion of Pupils by Category of Readers and by Gender 35

Table 19: Proportion of Pupils by Category of Readers and by Locality 36

Table 20: National Mean Scores on Arithmetic Sub-tasks 42

Table 21: Proportion of Pupils as per Tanzania Benchmark for Arithmetic 44

Table 22: National Summary of Pupils' Scores on Arithmetic Sub-task by Gender 45

Table 23: Proportion of Pupils who scored zero in Arithmetic 45

Table 24: National Mean Scores on Writing Sub-task 56

Table 25: Percentage of Zero Scores on the Writing Sub-task 58

Table 26: Availability of Teaching and Learning Resources 66

Table 27: State of theTeaching and Learning Environment 68

Table 28: Factors Affecting Teaching and Learning 3Rs skills 69

List of Abbreviations

3Rs	Reading, Writing and Arithmetic
BRN	Big Results Now
BEST	Basic Education Statistics for Tanzania
BEMIS	Basic Education Management Information System
CWPM	Correct Words Per Minute
DAO	District Academic Officer
DEO	District Education Officer
DLR	Disbursement Linked Results
EGRA	Early Grade Reading Assessment
EGMA	Early Grade Mathematics Assessment
ESDP	Education Sector Development Plan
EPfR	Education Programme for Results
ETP	Education and Training Policy
FFBED	Fee-Free Basic Education
FYDP	Five-Year Development Plan
GER	Gross Enrolment Rate
MoEST	Ministry of Education, Science and Technology
NECTA	National Examinations Council of Tanzania
NER	Net Enrolment Rate
PO-RALG	President's Office – Regional Administration and Local Government
PTR	Pupils - Teacher Ratio
PReM	Primary Record Manager
PSLE	Primary School Leaving Examination

ORF	Oral Reading Fluency
RC	Reading for Comprehension
REO	Regional Education Officer
RTI	Research Triangle Institute
SFNA	Standard Four National Assessment
SPSS	Statistical Package for Social Sciences
STNA	Standard Two National Assessment
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development

Executive Summary

Improving Reading, Writing and Arithmetic (3Rs) is one of the key priority areas in the education sector aimed to improve learning outcomes. The purpose of the 2019 survey was to determine the progress made thus far in developing foundational skills in reading, writing and arithmetic, or simply the 3Rs. The survey is based on the baseline benchmarks established by the National Baseline Assessment conducted in 2013. It established a validated understanding of pupils' performance on the 3Rs across Tanzania. The findings are further compared with those of the mid-term evaluation conducted in 2016.

The 2019 survey was conducted by NECTA, and is compatible to the EGRA and EGMA methodology that the RTI/USAID applied in the previous two rounds. The current survey focused on assessing the Education Programme for Results (EPfR) Disbursement Linked Results (DLR) 6.2 and 6.3 indicators. DLR 6.2 is Kiswahili reading speed in words per minute whereas DLR 6.3 pertains to improvements in Addition and Subtraction in Level II Arithmetic. In addition to these indicators, the 2019 study also assessed the Writing skills and surveyed the schools' teaching and learning environments.

The current survey covered all the 26 regions and councils of Mainland Tanzania from which it randomly selected only public schools. The population of interest comprised all Standard II pupils attending public schools. The sample was selected to provide estimates of pupils' performance at the national and regional levels with disaggregation by gender and urban/rural areas.

In all, 524 schools from a sample frame of 11,273 (71.35%) public schools (324 rural, 200 urban) with a total of 35,358 pupils only 30,158(15,083 girls and 15,075 boys) did participate in the survey[1]

[1] However, out of the 16,340 public schools, 1,247 (7.89%) schools with Standard II enrolments of fewer than 25 pupils and 3,280 (20.76%) schools with Standard II enrolments of more than 150 pupils were excluded. The schools with fewer than 25 pupils were excluded on the account of the costs associated with the assessment of a small group of pupils and those with more than 150 pupils were excluded to avoid a significant impact on the number of assessors needed to complete the exercise in a single day. Statistical analysis of various indicators was computed to determine whether the sub-sample accurately represented the excluded schools. Results indicate that the two groups were similar.

and sat for ORF, Arithmetic and Writing sub-tasks. It was noted that, only 28,816 pupils out of 30,158 pupils participated in both Oral Reading Fluency (ORF) and Arithmetic sub-tasks . All the Standard II pupils in the selected schools were assessed to allow NECTA to achieve its objectives for Standard II National Assessment Framework.

The sampling methodology called for a one stage sampling of schools, with each Standard II pupil in the sampled schools being assessed. The schools were stratified by region, resulting in 26 regions and further stratified by councils to create substrata by urban and rural localities.

The implementation of the assessment entailed the training of trainers and assessors to ensure that the data collected met the required standards. A total of 240 experienced examiners from NECTA and District Councils participated in the training as national trainers. Ultimately, 234 successful trainers were posted to all the 186 councils of Mainland Tanzania to train 3,460 assessors who administered the assessment at the school level. Data collection at council level in all the regions of Mainland Tanzania took place on 31st January and 1st February 2020.

Reading Skills Assessment Results

The 2019 reading assessment aimed to determine the performance of pupils on two sub-tasks: ORF and Reading for Comprehension (RC). Although the proportion of pupils who could read 50 Correct Words Per Minute (CWPM) remained unchanged relative to the baseline (4.7% in 2013, against 5.2% in 2019), ORF improved to 26.18 CWPM, hence meeting the national EPfR target of 20 CWPM.

Further analysis based on gender shows that girls achieved a higher mean of 28.1 CWPM whereas boys achieved a mean of 24.2 CWPM. The analysis of the Kiswahili Reading sub-task for zero scores shows a steady reduction in the number of these scores, which clearly indicates that the efforts made by the Government to improve the teaching and learning process have had significant positive effects.

Moreover, progress had been made in reducing the percentages of pupils in the lower categories of readers (non-readers and beginning readers)[2]. Indeed, there is a notable reduction of non-readers from 27.7 percent, 16.1 and 15.6 percent in the 2013, 2016 and 2019 assessments, respectively. Results also show a reduction in the percentage of beginning readers by 9.7 percent compared with the 2013 baseline. Additionally, there is a significant increase in the proportion of the progressing readers that has increased steadily from 22 percent in 2013 to 30.8 percent and 42.7 percent in the 2016 and 2019 surveys, respectively. The proportion of proficient readers, however, marginally decreased by 0.8 percent between 2016 and 2019 studies. When further analysed by gender, the data indicates that girls performed better than boys across the categories.

In terms of rural and urban settings, results show that the performance of all the categories of readers favours urban schools. The percentage of non-readers in urban settings is 12.5 percent whereas that of the pupils in rural settings is 17.6 percent. As for beginning readers, only 34.9 percent of the pupils from urban schools were in this class, as compared to 38.6 percent of rural ones. The topmost category comprised 40.0 percent of rural pupils and 46.9 percent of urban pupils.

For the RC sub-task, the pupils' performance was measured by the percentage of correct responses to five (four factual and one inferential) questions. Based on the rating scale of 100 percent for all five correct questions, the results show that 29.7 percent did not perform well. This category includes 23.4 percent with zero scores and 6.3 percent with only one correct answer. Moreover, 13.4 percent answered 2 questions correctly whereas 18.1 percent were able to respond correctly to 3 questions. A total of 21.1 and 17.6 percent of pupils correctly answered 4 and 5 questions, respectively. This makes 38.7 percent of the pupils who scored at the national benchmark on RC. Although the 2019 study witnessed an increase in

[2] The four categories of readers include non-readers (those who could not read a single word), beginning readers (those who could read at least 1 to 29 words), progressing readers (those who could read 30 words per minute and above) and proficient readers (those who could read all the 50 words assigned).

the number of pupils scoring at the national benchmark[3], the general performance (in mean scores) on RC was 13.01. This has an implication for emphasis during the teaching and learning process to the effect that ORF and RC must be given equal emphasis. The pupils must be able to read fast and understand what they are reading and recall facts from the text they have just read and make inferences.

Gender-wise, just like in ORF, results show that girls generally performed better than boys. In the two categories (Good and Very Good), girls comprehended the text better (40.6%) than boys (36.9%)[4]. Moreover, comparing their mean scores revealed that pupils from urban areas performed better (43.9%) on RC than pupils from rural areas (35.5%).

Apart from that, the performance of pupils on the reading sub-task was analysed by region. Findings indicate that, in 2019, 12 regions performed above the national average on ORF and RC sub-tasks. These regions are Arusha, Dodoma, Manyara, Simiyu, Njombe, Iringa, Coast (Pwani), Tanga, Dar es Salaam, Morogoro, Singida and Kilimanjaro. Regarding reading, since 2016, Singida has posted the most impressive improvement in both ORF and RC. Morogoro, Lindi and Coast (Pwani) registered commendable improvements in RC. In contrast, Arusha and Geita recorded a decline in both ORF and RC. Results also show an apparent relationship between ORF and RC.

Arithmetic Skills Assessment Results

The National benchmark for Arithmetic is set at 80 percent for Addition and Subtraction Level II and 60 percent for Missing Numbers.

The results were compared with the performance of the 2013 Baseline study and the 2016 EGMA study to determine whether progress in Arithmetic has been made. Findings indicate a significant difference in the percentage of pupils who met the national

[3] 80 percent correct answers

[4] A significant association was found between categories of scores in comprehension across gender, $x^2(3,1771513) = 8683.8, p=00.$ In other words, girls are more likely than boys to comprehend the text they were reading.

benchmark for Arithmetic sub-tasks for the 2013, 2016 and 2019 studies. Although the 2019 national target of 22 percent of pupils scoring at the national benchmark has not been attained, it is encouraging to note that the percentage of pupils attaining the benchmark has improved by more than 100 percent since 2013. Between 2016 and 2019, an improvement of 9.2 percent has been recorded, which indicates that the initiatives that the Government of Tanzania is taking to improve the quality of learning in schools are bearing positive effects.

Generally, results indicate that boys performed better than girls. The difference was statistically significant ($p=0.00$, $\alpha = 0.05$). Findings also indicate that boys scored above the national average and outperformed girls whose performance was below the national average. Overall, the difference in the mean scores on Arithmetic (addition, subtraction, missing words and word problems) between the performance of boys and girls was statistically significant ($p=.00$), hence indicating that boys performed better than girls in Arithmetic.

Findings also reveal that 22.8 percent of the pupils scored zero on the Addition and Subtraction sub-tasks and 24.1 percent on the Missing Number sub-task. Analysis across the years under review show that the proportion of pupils scoring zero on the Addition and Subtraction (Level II) sub-tasks has dropped. On the other hand, the performance on the Missing Numbers sub-task has been fluctuating, with 2019 showing the least impressive performance.

Additionally, four categories of performers (non-performers, emergent performers, approaching benchmark performers and benchmark performers) were adopted[5]. Results show that, in the 2019 study, there was a significant improvement in the top two

[5] Non-performers: The score on the Missing Number Sub-task equals zero and/or the score on the Addition and Subtraction (Level II) sub-tasks equals zero. Emergent Performers: Both scores for the Missing Number sub-task and the Addition and Subtraction (Level II) sub-tasks are above zero. Approaching Benchmark Performers: Either the score on the Missing Number Subtask or the score on the Addition and Subtraction (Level II) sub-task is at or above the Tanzania benchmark. Benchmark Performers: Both scores on the Missing Number sub-task or the Addition and Subtraction (Level II) sub-tasks are at or above the Tanzanian benchmark.

categories (approaching benchmark and in benchmark performers) when compared to the performance reported in the 2016 study.

Further analysis revealed that, in total, 12 regions performed above the national benchmark for Addition and Subtraction (Level II) whereas 14 performed below the national average. On the one hand, Dodoma had the highest proportion of pupils performing at the national benchmark (27.2%), followed by Morogoro (26%), Dar es Salaam (25.3%), Coast or Pwani (22.6%) and Kilimanjaro (20.6%). On the other hand, Tabora (11.5%), Mtwara (6.2%) and Rukwa (5.1%) had the lowest proportion of learners performing at the national benchmark.

The regional performance by mean scores on the three arithmetic sub-tasks show that Morogoro region ranked top, followed by Dar es Salaam, Ruvuma, Dodoma, Pwani and Tanga respectively whereas Rukwa, Kigoma, Mara, Songwe and Mwanza were at the bottom. In comparison with the 2016 study, the results indicate that Pwani (15.6%), Dar es Salaam (15.3%) and Lindi (15%) improved the most in Addition and Subtraction (Level II). As for Geita, it improved by a mere 0.5 percent. In contrast, Rukwa registered a decline by 0.9 percent during the same period.

Writing Skills Assessment Results

The writing skill assessment tested the ability of the pupils to write words correctly, differentiate capital from small letters and to use punctuation marks correctly. No comparison of results was made with previous studies because the writing assessment was conducted for the first time in the 2019 study to meet the curriculum requirement.

The national mean score on the Writing sub-task was 51.7 percent. Results show that, when the pupils are disaggregated by gender, girls outperformed boys in the Writing sub-task (significantly different at $p=0.00$, $\alpha =0.05$), and they had the mean score of 53.3 percent above the national mean. This indicates that, generally, girls performed better than boys on the Writing sub-task. In terms of the percentage of zero scores, 7.7 percent of the pupils scored zero on the Writing sub-task nationally. When disaggregated by gender, the

data indicates that more boys (8.7%) than girls (6.8%) scored zero on the Writing Assessment sub-tasks.

However, the regional performance relative to the national mean score on the Writing sub-task shows that 12 regions performed above the national average whereas the remaining 14 regions performed below the national average. Kigoma (35.2%) and Geita (36.4%) were the least performing regions on the Writing sub-task whereas Dar es Salaam (72%), Morogoro (68.5%) and Kilimanjaro (66.5 %) were the best performing regions.

Analysis of Item Difficulty

The analysis of items' difficulty was done by establishing how the pupils performed on each of the 3Rs skills. In analysing ORF, the study established that the pupils found the word *Ng'alo* to be difficult to read because it has a syllable which is composed of a *nasal sound Ng'a*. The word *Subira* also seemed difficult to most of the pupils. This can be associated with mother-tongue effects as most of the pupils pronounced it incorrectly as *Subila*. It has also been noted that pupils had difficulties in pronouncing words that were composed of consonant clusters such as *alishindwa*, *amechomwa* and *hospitali*. Notably, the percentages of the correct words, which were read by the pupils, decreased towards the end of the passage. This implies that most of the pupils could not read them because the allocated time ended before they could read them.

Regarding RC, the study findings indicate that the performance of pupils on three questions which required them to recall names and make inference was better than on two questions that required them to recall factual information (Figure 13). Implicitly, *Ng'alo* was also a difficult word for the pupils to understand when it was used as a response to the question as only 38.4 percent of the pupils got it right.

In Arithmetic skills assessment, the results show that, the percentage of pupils who responded correctly to the items decreased with the increasing level of item complexity. The items that constituted the Addition and Subtraction Level II sub-task consisted of five addition and five subtraction items. The general performance of pupils decreased as the level of difficulty/complexity increased. Concerning

the addition items, the pupils found the addition of two double-digit numbers with carrying more challenging than adding one to two-digit numbers without carrying. Similarly, the pupils found adding a one-digit number to a two-digit number that involved carrying more challenging than adding a one-digit number to a two-digit number without carrying. A similar trend was observed in subtraction items which involved borrowing. Pupils also did not perform well on the addition items that required carrying. A similar trend was observed in word problems. When addition and subtraction are considered separately, the pupils found the concept of subtraction more difficult than addition.

Generally, in Missing Numbers, the analysis shows a decreasing percentage of correct responses with increasing values. Numbers that increased by 1 or 10 were less challenging to the pupils than recognising missing numbers in the patterns that increased by 2 and 5. The pupils also found it difficult to identify a missing number in a decreasing pattern.

In analysing writing performance, the percentages of the correct writing of each word were established. Study findings show that, in writing words, the pupils performed better in writing four out of the 10 words. The words include *meza* (74.0%), *saa* (75.9%) *bata* (67.9%) and *Kikombe* (64.5%). In other words, it was easier for the pupils to write words formed by a consonant followed by a vowel than it was to write words with a consonant followed by another consonant and a vowel like *Ng'ombe* (37.1%), *mpira* (42.0), *chura* (46.9%) and *Mguu* (49.6%). For underlining the words written in small letters, no significant difference among the 10 words was noticed. The pupils' performance ranged from 46.5 percent to 52 percent. This implies that the pupils' ability to copy the words did not vary significantly, hence resulting in a small perfomance difference.

It was further noted that, though pupils had good aptitude in copying the words they were given to punctuate, most of them could not use punctuation marks appropriately. This is exemplified by the lower percentage of correct usage of the question mark (17.9%), the exclamation mark (24.7%), the comma (12.8%) and the full-stop (18.5%).

Availability of Teaching and Learning Resources

Data relating to teaching and learning resources for the 3Rs were collected from head teachers using questionnaires to assess the availability of teaching and learning resources.

The data collected shows that, the supply of textbooks for teaching Arithmetic is good at 97.07 percent, although there are variations in the supply levels. The results show that 59.32 percent of the 482 respondents indicated that there was good availability of textbooks whereas 37.75 percent indicated that there was an average availability of textbooks. Only 2.93 percent indicated that there was inadequate availability of textbooks, respectively.

As for the availability of textbooks for teaching Reading skills, the data shows that there was an adequate availability of textbooks in the schools (96.7%) whereas, on average, 95.66 percent of the head teachers reported that there were reading books, such as story books for teaching Reading skills.

As for tools such as counting aids for teaching Arithmetic skills, the data reveals that there is a good availability of such tools in schools (at 90.31%). However, the presence of materials such as writing boards for teaching Writing skills was rated at 80.03 percent, compared to the availability of other teaching and learning resources.

Teaching and Learning Environments

The head-teachers were also asked about the condition of the teaching and learning environment which includes the availability of desks, tables and chairs for pupils and teachers, classrooms, drinking water and sanitation as well as co-operation between parents and the school management. Overall, 97.28 percent of teachers acknowledged the existence of co-operation between the school management and the parents/guardians of Standard Two pupils; 65 percent of the head-teachers responded that, there was good co-operation whereas 20.20 percent said the co-operation was average and 12.08 percent indicated that this co-operation was excellent. Only 2.70 percent were not satisfied with the co-operation.

As for the factors that affect the teaching and learning of 3Rs, results indicate that the shortage of trained teachers to teach the 3R skills

was the major challenge affecting the teaching and learning of 3Rs (71.69%) followed by distance (56%). The problem of distance was most prevalent in Simiyu and Katavi regions where 17 heads of school from both areas reported it to be one of the key challenges. Singida and Iringa regions had 16 and 14 respondents, respectively, reporting this aspect as a problem.

To overcome these challenges, the majority of the head-teachers (33.77%) suggested that the Government, in collaboration with NGOs and other partners in education, should host frequent seminars and training in the implementation of 3Rs: 30.46 percent indicated that there should be a special strategy of employing more teachers with knowledge and appropriate pedagogical skills whereas 6.62 percent recommended that there should be strategies to improve the learning environment particularly for pupils with special needs.

Conclusion and Recommendations

Conclusion

The findings of this study indicate that progress has been made in both Reading and Arithmetic assessment. Although there is a steady decrease in the proportion of non-readers and the percentage of proficient readers in the 2019 study, it can be argued that the efforts to enhance the quality of education signals some positive results. This is demonstrated by the reduced percentage of non-readers and beginning readers, which is marked by the increased percentage of the progressing readers. It is particularly gratifying to note improvements in pupils' ability to read words correctly per minute and particularly the achievement of the set target of 20 CWPM. Considering the huge and extraordinary increase in the number of enrolments as a result of the Fee-Free Basic Education Policy (FFBEP), the Government has done well to maintain and sustain these levels.

Additionally, there is progress in reducing the number of non-readers in Reading from 27.70 percent in 2013 to 15.60 percent in 2019 although the national mean did not reach the 2019 target of reducing the percentage of zero scores to 14 percent. Likewise, there was a significant improvement in the speed of reading and the proportion of

pupils scoring more than 80 percent in comprehension. However, the overall performance (in the mean score) on reading for comprehension decreased. This is a point of concern because the purpose of learning to read is to equip pupils with skills to comprehend what they read so that they can read to learn as envisaged. When data is analysed regionally, there are regions that have performed above the set target. In Arithmetic, for example, there is progress in reducing the number of non-performers. Despite the progress made, concerted efforts are also needed in Arithmetic to improve the pupils' performance.

Moreover, in Writing skill assessment, the analysis of data shows that more pupils (29.9%) could correctly identify at the most 10 words written in capital or small letters or write at the most 10 words and could copy at the most 16 words with four (4) correct punctuation marks.

Recommendations

Based on the findings of this study, the following are recommended:

(i) Research has shown that frequent exposure to written text improves the pupils', reading skills. It is, therefore recommended that, improving the pupils' letter recognition and comprehension of what they read, teachers should provide them with a variety of reading materials. Such reading materials should correspond to their class levels to enable them to improve their reading speed and comprehension.

(ii) The study findings indicate slow progress in reading for comprehension which did not meet the set target. On the other hand, oral fluency met the set target. This implies that, although pupils can decode what they see in the text, they cannot comprehend what they decode. It is, therefore, recommended that, during teaching equal emphasis should be placed on letter/word recognition, reading fluency and reading for comprehension be emphasised. Doing so would enable pupils to connect what they read and grasp the associated meanings.

(iii) Findings further signal inadequate performance in arithmetic skills particularly when it comes to Addition and Subtraction at

Level II. In this regard, the pupils managed to add or subtract simple two by one digit numbers without carrying or borrowing. However, the pupils' performance weakened with increased complexity of the addition and subtraction tasks. It is, thus, recommended that, during teaching, teachers should develop strategies capable of boosting the performance of pupils in these problematical areas.

(iv) The study findings also established a huge variation in performance among regions. Whereas some regions' performances were above the national mean, those of others were far below the national mean that is consistently, in all the three skills assessed. As such, the authorities concerned should look into the challenges that are prompting these regions to perform poorly on consistent basis.

The study findings also indicate that, pupils were aware of Kiswahili orthography. However, they still needed more practice in the use of basic punctuation marks, which appeared to be problematic to most of the pupils.

(v) In Tanzania, many basic schools' inputs aim to engender an effective process of teaching and learning. These inputs have been defined in existing policies and include adequate teaching staff. However, due to limited financial resources, the specified staffing policies have not been fully instituted. Nevertheless, the Government has exerted concerted efforts to mitigate the shortage of teachers; still, much more needs to be done to rectify the situation.

CHAPTER ONE
CONTEXTUALISING THE ASSESSMENT

1.1 Introduction

This chapter briefly introduces Tanzania's education policy in relation to the 3Rs assessment. The chapter further explains the nature of primary education in Tanzania to contextualise the rationale for 3Rs assessment apart from meeting other requirements such as EPfR. The chapter concludes by briefly highlighting the background to the 3Rs assessment in addition to providing an overview on the 3Rs assessment.

1.2 Education Policy Context

Tanzania's education policies align with the priorities of the country which are set out in Tanzania Development Vision 2025 and the National Five-Year Development Plan (FYDP 2016/17 – 2020/21). The 2014 Education and Training Policy stipulates the role of the education sector in preparing human resources for the country's socio-economic development. The policies and FYDP include specific indicators related to education that emphasise aspects such as the environment, infrastructure, literacy and skills acquisition. To achieve these objectives, the Government of Tanzania developed the education Sector Development Plan, which aims to ensure that the entire education sector and all activities within it focus on the main goal of improving the learning outcomes and ensuring the acquisition of relevant skills.

1.3 Primary Education in Tanzania

Primary Education in Tanzania was established by Act No. 25 of 1978 and its amendment of cap 353 of 2002. The Act stipulates the duration for the pupils to complete the primary education cycle. Specifically, it provides for one year of pre-primary education followed by seven years of compulsory primary education. Thus, it is mandatory for all school-going age children to be enrolled and to attend school for all these seven years. The Curriculum of Primary Education in Tanzania is developed around the philosophy of

Education for Self-Reliance. This philosophy emphasises relating educational needs to the needs of the society, enhancing critical thinking and inquiry, learning through theory and practice, nurturing confidence, making informed decisions and valuing humanity as well as participating in the process of producing goods and services.

Two major curriculum reviews have been conducted to replace the 1997 curriculum, which had been organised in terms of subjects and focused on content. The 2005 review presented a paradigm shift from the subject-oriented curriculum, which emphasised on the mastery of content to the competency-based curriculum. The primary school curriculum reform made in 2015 underscored enhancing learners' acquisition of Reading, Writing and Arithmetic (3Rs) competencies, among others. These curriculum reviews were based on the Education Act of 1978 and its subsequent amendments, the Education and Training Policies of 1995 and 2014, the Education Sector Development Plan of 2007/08 – 2016/17 and the Tanzania Development Vision 2025. In these reviews, the National Assessment of 3Rs constitutes one of the key initiatives aimed to improve the literacy and numeracy of children and, ultimately, the overall learning outcomes.

The 2015 Primary Education curriculum has two parts. The first part addresses the lower primary level, which covers Standard I and II. The main objective of this level is to develop pupils' Reading, Writing and Arithmetic skills (3Rs), particularly in achieving the required fluency. The second part of the curriculum addresses competencies that pupils should acquire from Standard III to Standard VII. The main objective of this level of the curriculum is to further enhance the learning of 3Rs at advanced stages (Standards III – IV) while enabling pupils to acquire life-long learning skills through learning different subjects inculcating specific competencies. The subjects pupils must learn at the primary school level are Kiswahili, English, Social Studies, Mathematics, Science and Technology, Civic and Moral Education, and Vocational Skills. The optional subjects include Religion, French and Arabic.

1.4 Background to the 3Rs Assessment

The 3Rs assessment survey had been conducted jointly by the Government of Tanzania and development partners using

internationally-recognised methodology. The idea of conducting the 3Rs assessment was based on the education reforms that started in 2013 based on the Big Results Now (BRN) project. Since then, several assessments have been conducted in 2013, 2016 and 2019.

The 2019 assessment is not an EGRA/EGMA by definition. However, the Education Programme for Results (EPfR) indicators on the mean reading speed in words per minute and Addition and Subtraction Level II have been treated in a way that is fully compatible and comparable with the previous three assessments.

The 2014 Education and Training Policy extended basic education from the former seven years on Tanzania Mainland to ordinary secondary school level. This implies that, once the pupil is enrolled in Standard I, he/she is expected to study uninterruptedly up to the ordinary secondary school level (Form IV). However, this does not imply that pupils will simply progress to higher levels of education regardless of their performance. This further brings into the equation the rationale for conducting these national assessments.

In primary education, two national assessments are conducted by the National Examinations Council of Tanzania (NECTA): The Standard Two National Assessment (STNA) and the Standard Four National Assessment (SFNA). The aim of the STNA is to assess the achievement of pupils in their acquisition of 3Rs skills which are the foundation for pupils to learn effectively at higher levels of education. The identified successes and challenges of learning are communicated to the teachers and other education stakeholders to improve pupils' mastery of competencies at that level.

The SFNA is also meant to assess the pupils' readiness to embark on higher studies in Standard V to VII. At this level, they are expected to read in order to learn, to write in order to communicate their ideas, as well as to perform more complicated arithmetic tasks and apply knowledge gained in Arithmetic problem solving. The SFNA is designed to assess the extent to which pupils have developed these skills. The challenges which pupils face are also communicated to the teachers and other stakeholders in education for action. The two national assessments (STNA and SFNA) aim to ensure that pupils learn effectively and reach higher levels with the

required competencies so that the continuity of basic education is realised without compromising the quality of that education.

In 2015, the Ministry of Education Science and Technology (MoEST) gave the National Examinations Council of Tanzania (NECTA) the mandate to conduct Standard Two National Assessment in the country. However, due to the large number of pupils on a national scale, the assessment involved a sampling model instead of all the schools. The first assessment of 3Rs was conducted by NECTA in 2015 followed by other assessments in 2016 and 2017. The previous assessments in the 3Rs were slightly different in terms of the samples that were used. The sampling process included randomly selected regions from each of the 11 educational zones in which one region was selected to represent that particular zone. In each region, two councils were selected. Another feature of the previous assessments was the inclusion of English-medium schools in their samples.

However, the 2019 assessment of 3Rs took a different path due to the requirement to comply with the Education Programmes for Results (EPfR) DLR 6.2 and 6.3 indicators. As a result, all the regions and councils were included in the sample from which, public schools were randomly selected based on proportional representation.

1.5 Overview of Reading Skills

Rationale for Assessing Reading Skills

Reading is central to acquiring academic knowledge. A person becomes literate when he/she has functional abilities in reading, can communicate through writing and apply some arithmetic skill in solving everyday problem. However, prior to using reading in order to learn, the person must first learn how to read. Studies have established the importance of fluency in reading. Fluency is associated with the overall achievement, especially during elementary schooling (Alvarez-Canizo et al, 2015; Lucia et al., 2017; Nunes et al., 2012). In addition, in today's fast-paced world, a person needs to read and understand as many texts as possible. This means that acquiring the ability to read fluently at the early ages is fundamental.

However, some pupils reach higher class levels with some challenges in reading fluently. This has a detrimental effect on their ability to use reading as a means to acquiring new knowledge. This, consequently, widens the gap between the pupils who can read fluently and those who struggle. It has also been established that, learning to read becomes more difficult with an increase in age. Assessing reading at early stages, therefore, becomes important in ensuring that intervention measures are developed for pupils facing problems in acquiring reading skills at early ages.

Focus of the Reading Assessment

The purpose of reading is to understand the meaning of the written text. Reading develops gradually. During the initial stages, reading relies on decoding graphemes into phonemes. From this stage, through frequent exposure, the reader develops rapid and efficient word recognition, which allows him/her to read rapidly and efficiently. Reading assessment measures skills required for the reader to read efficiently. These skills include letter sounds, decoding, fluency and reading for comprehension. All the three skills are tested as the pupil reads a passage as continuous text. In terms of developmental stages, letter sounds and decoding constitute lower order skills. In contrast, fluency and comprehension are higher order skills. In this regard, the progression of pupils can be assessed even if the pupil cannot read the whole passage because the lower order skills are predictive of the later reading achievement (RTI, 2016).

In fact, assessing the lower order reading skills (letter sound knowledge and decoding) can measure children's ability to read. In their early stages children learn to recognise the alphabetic letters and their associated sounds and then progress to decoding the letters to learn new words.

Chambers (1997) describes fluency as a smooth and effortless production of speech and punctuation. It can be added here that this smooth and effortless production of speech must be done with sufficient speed and accuracy. Goves and Wetterberg (2011) argue that the use of timed assessments of correct words per minute has a strong correlation with more complex assessments, hence its application in assessing fluency.

The eventual goal of reading is comprehension. Assessing comprehension can help determine the overall ability of the reader. In reading for comprehension, the reader translates letters into sounds and units of sounds into words, processes the connections related to the meaning and makes inferences to fill in missing information (Goves and Wetterberg, 2011). Thus, reading for comprehension as a higher order reading skill can suffice to measure the lower level skill irrespective of whether the reader can read the whole paragraph.

Reading Skill Assessment Tool

The tool for assessing the reading skill in 2019 was developed by the National Examinations Council of Tanzania in collaboration with teachers who teach at Standard I and II levels. The teachers were appointed and asked to develop passages consisting at the most of 50 words. From these passages, two were selected and piloted. An equating study was conducted to ensure that the level of difficulty of the passages correlates with the level of difficulty of the passage which was used in the 2016 EGRA/EGMA study. The equating study led to the selection of the passage that was eventually used in the 2019 reading assessment sub-task. The reading assessment tool (see Appendix 10) consisted of two sub-tasks: An oral reading fluency sub-task and reading for comprehension sub-task. Similar to the EGRA/EGMA study of 2016, the reading assessment tool was individually and orally administered in Kiswahili. Each pupil took about10 minutes. Table 1 shows the sub-tasks that were included in the instrument:

Table 1: **Reading Assessment Tool Sub-tasks**

Subtask	Skill	Description The child was asked to…….
Oral Reading Fluency	This task required pupils to read automatically, rapidly and correctly	Read aloud a passage printed on a page (timed sub-task)
Reading comprehension	Comprehension	Read aloud a passage and verbally respond to five oral questions (four literal and one inferential) that the assessor asks about the short passage (Untimed sub-task).

1.6 Overview of Arithmetic Skills

Rationale for Assessing Arithmetic Skills

Many studies across the globe have provided evidence that, there is a predictive relationship between early grade mathematical knowledge and skills to academic achievement in subsequent grades. Mathematical knowledge and skills are also associated with economic status. For example, low income is associated with low mathematical knowledge and skills even at the country level (Mulis, Martin and Arora as cited in Platas et al 2016). Low income earning countries are said to score low in terms of mathematical knowledge when compared to high and middle income earning countries. UNICEF (2007) further stresses that mathematical performance is significantly poorer in countries with relatively lower income than in those with higher earnings. The associated predictive nature of early grade mathematics assessment makes it necessary to assess mathematics at the early stage of children's education to make reforms or develop interventions capable of enhancing their mathematical literacy.

Early grade mathematics assessment is important to policy-makers and practitioners. They can use the results to evaluate the effectiveness of educational policies, curricular reforms or programmes, instructional practices and interventions.

Although the performance of children in early grade mathematics assessment is predictive of their later performance in other areas of their studies, mathematical knowledge is highly essential in our daily lives. In fact, engaging in mathematical activities enhances children's thinking and problem solving skills.

Focus of Arithmetic Skill Assessment

In measuring children arithmetic skills, level II addition and subtraction sub-tasks were included in the assessment tool. The tool also had items that required children to identify missing numbers in a series at varying intervals. The survey also tested problem-solving skills involving the application of addition and subtraction skills. The concepts of missing numbers and word problem were tested to meet the requirement of the curriculum and guidelines for assessing 3Rs.

While the rest of the items were administered using a paper and pencil based method, two sub-tasks, which included five Level II addition items and five Level II subtraction items were administered orally to address the EPfR DLR 6.2 and 6.3 requirement. The assessment process began by assessing the pupils' oral reading skills followed by the assessment of their oral arithmetic skills in one sitting.

Arithmetic Skill Assessment Tool

In developing the arithmetic assessment tool for the 2019 assessment, a strategy similar to that used to develop the reading skill tool was used. Experienced teachers teaching Standard I and II were employed to develop several items for use in assessing the pupils. The set items were developed into a tool by the examination officers responsible for Arithmetic skills assessment. The tool developed (see Appendices 10, 11 and 12) was then checked and verified by technical experts and agreed upon. Guiding principles were followed. These included ensuring that the tool adhered to the national curriculum while maintaining comparability particularly with the items that would meet the requirement of the DLR 6.2 and 6.3 indicators. Discussions resulted in the realisation that there would be no need for an equating study for the Arithmetic assessment items as they closely matched with the type of items that were initially applied in the 2016 survey. Table 2 shows the sub-tasks, which were included in the instrument:

Table 2: **Arithmetic Assessment Tool Sub-tasks**

Subtask	Skill	Description The child was asked to …
Missing Numbers (Number patterns)	This sub-task required the ability to discern and complete number patterns	fill in the blank space the missing number in a pattern of four to six numbers (timed sub-task).
Addition and Subtraction Level II	This sub-task required the ability to apply procedural addition and subtraction knowledge to solve more complex addition and subtraction problems.	solve the addition and subtraction given. In this sub-task, the pupil was allowed to use any strategy they wanted, including paper and pencil to calculate and give their solutions orally. However, the assessor could advise the pupil to use another strategy if he/she felt that the strategy which the pupil was using was inappropriate at his/her level. If the pupil was not

Subtask	Skill	Description The child was asked to …
		familiar with another strategy, the assessor advised him/her to continue to another item (untimed sub-task).
Word Problems	This sub-task required the ability to interpret situations given in the form of a problem and create a mathematical plan to solve it.	solve addition and subtraction problems. The pupil was free to use paper and pencil to make his or her plan in solving the problem. The sub-task assessed their ability to interpret the problems presented and use the knowledge of addition and subtraction in making a plan to solve them (timed sub-task).

1.7 Overview of Writing Skills

Rationale for Assessing Writing Skills

Writing is one of the chief and most common means of communication. Unlike speaking, which allows the listener to ask for clarification immediately, written communication does not always give that chance. It is, therefore, important that the writer writes accurately and concisely to present clearly and transmit exactly what he/she intends to communicate. The literature on early grade writing assessment suggests that the notational competence is a strong predictor of early writing skills (Pinto, Bigozzi, Gamannossi and Vezzani, 2012). Moreover, the acquisition of orthographic competence begins with the awareness of the phonographic aspect before the morphological aspect. Therefore, children's formalised spelling attempts are supported by their awareness of phonological information followed by increasingly sophisticated relations among phonology, orthography and morphology (McCutchen et al, 2009).

Focus of the Writing Skills Assessment

Writing skills assessment focuses on the conceptual knowledge of pupils' orthographic knowledge. In this case, the assessment seeks to determine whether children can write the vocabulary of the language using correct spelling. The activities to achieve this writing task can include association of objects with their corresponding words. The assessment of writing skills can also measure children's

textual competence - the ability of the children to organise text logically and use punctuation marks appropriately.

Writing Skills Assessment Tool

The development of the writing assessment tool for the 2019 assessment took a similar procedure to those used in developing the Reading and Arithmetic assessment tools. Qualified teachers teaching at Standard I and II levels were selected and given the task of developing writing assessment sub-tasks. The sub-tasks adhered to the Standard I and II writing skills curriculum. These were then moderated by NECTA co-ordinators in collaboration with the EPfR and NECTA technical teams, who modified the tools and piloted them. After piloting, some modifications were made to ensure that the tool (see Appendix 13) achieved the expected results in collecting data. The modified tool consisted of three sub-tasks: The first two sub-tasks measured the children's orthographic knowledge whereas the third sub-task measured their textual competence. No equating study was done with the 2016 survey because that study did not test the pupils' writing skills. Table 3 shows the sub-tasks that were included in the assessment tool:

Table 3: **Writing Assessment Tool Sub-task**

Subtask	Skill	Description The child was asked to…
Writing single words representing given pictures	This sub-task required children's knowledge of Kiswahili orthography, especially how syllables are used in forming words.	look at the pictures of common objects and write the names (words) they represent.
Identification of small and Capital letters	This sub-task required the knowledge of the alphabet forming Kiswahili orthography especially how small letters differ from capital letters.	identify and underline the words written in capital letters from a list of words which had a combination of words written in both capital and small letters.
Appropriate use of punctuation marks in writing.	This sub-task required the knowledge of children of the mechanics of writing in Kiswahili language particularly the use of basic punctuation marks in writing.	Re-write the given passage while putting appropriate punctuation mark to make the passage to flow naturally and logically.

CHAPTER TWO
METHODOLOGY

2.1 Introduction

This section presents the methodology of the study to enable the reader to understand the population of the study, its sampling criteria, the replacement criteria, the sample size and its rationale. It also highlights the preparation of the data collection tool, appointment and training of trainers and assessors, monitoring of the assessment process and data processing. The chapter further highlights the methodological limitation encountered during data collection.

2.2 Population

The population consisted of all Standard II pupils attending public schools on Mainland Tanzania. The sample was selected to provide estimates of the pupils' performance at the national level (with disaggregation by gender and urban/rural levels). The Primary Records Manager (PReM) computer system was used as the sampling frame for the schools on Mainland Tanzania. The PReM computer system provides the most complete and accurate source of school data available at NECTA[6]. Out of the 16,340 public schools in the system, 1,247 (7.89%) schools with a Standard II enrolment of fewer than 25 pupils and 3,280 (20.76%) schools with the Standard II enrolment of more than 150 pupils were excluded. The schools with the enrolment of fewer than 25 pupils were excluded due to the costs associated with the assessment of a small group of pupils. Likewise, schools with the enrolment of more than 150 pupils were excluded to avoid a significant impact on the number of assessors needed to complete the assessment within the allotted time.

[6] The PReM system is used to manage pupils' data electronically for all the schools in Tanzania. It collects and stores enrolment and assessment data for all the pupils from Standard I to VII. Enrolment data include pupils' names, date of birth, vaccinations, distance to the school, parents or guardian address and other particulars. The PReM and the Basic Education Management Information System (BEMIS) are complementary in nature. For example, whereas BEMIS provides summary data of enrolment in a particular school, PReM details the name and tracks of an individual child e.g. assessment progress and transfers.

Based on these selection criteria, schools within each region were sorted by district, locality, enrolment and school code. The rationale for sorting the schools by locality and enrolment was to ensure that the sampled schools represented the population of pupils in respective regions. Moreover, the ratio of the contribution of pupils enrolled in each council was computed to determine the number of schools to be sampled from respective councils. For data comparability with EGRA/EGMA, sampling targeted ensuring that each region had at least 20 schools in the study; thus, each council was expected to contribute at least 2 schools but not more than 5 schools. To ensure the sampled schools represented all the portions of the population in the region, the council with a higher ratio was given more weight in the sampling criteria. After making appropriate exclusion, the reservoir sampling technique was performed by a computer system. Accordingly, a sample of 524 schools was drawn from the sample frame of 11,273 (71.35%) public schools (324 rural, 200 urban). Table 4 illustrates this sampling:

Table 4: **Sample Methodology Summary**

Stage Number	Item Sampled	Stratified by	Probability of Selection
1 Schools	Schools (524)[7]	Region (26) Councils (186) 20 Schools per region	Proportional to Enrolment (Class Size)
2 Classrooms	Standard II Classrooms	<none> All Standard II streams per selected schools were included	Non-Probability Sampling (Purposive)
3 Pupils	Standard II pupils (Almost 28,816 pupils)	<none>	Non-Probability Sampling (Purposive)

Ultimately, 524 public primary schools participated in the assessment. Statistical analysis of various indicators helped to determine whether the purposive exclusion of schools had any bias and whether the sub-sample was an accurate representation of the

[7] Note that NECTA's sample was 524 schools instead of 520 schools as stipulated in the sample methodology summary because Tanga Region had 12 councils. Thus, it contributed 24 schools instead 20 schools to the sample since the sampling criteria required that every council should have at least 2 schools. Thus, the addition of 4 schools made the main sample reach 524 schools.

population. Table 5 presents the statistical analysis that was conducted to determine the relationship between the sampled and non-sampled schools:

Table 5: **Relationship between Sampled and Non-Sampled Schools**

Indicator	Mean		SD		Standard Error (SE)		Test of relationship			Remarks
	Sampled Schools	Non-Sampled Schools	Sampled Schools	Non-Sampled Schools	Sampled Schools	Non-Sampled Schools	P-Value	t Stat	t Critical two-tail	
Kiswahili PSLE 2019[8]	30.54	31.48	4.99	4.65	0.23	0.07	0.00	-3.89	1.96	Significant
Kiswahili SFNA[9] 2019	31.39	30.46	7.43	7.26	0.33	0.11	0.01	2.73	1.96	Significant
Enrolment	63.60	176.50	28.60	137.05	1.25	2.03	0.00	47.30	1.96	Significant
PTR	54.80	65.46	22.35	27.95	0.58	0.42	0.00	-14.88	1.96	Significant

As expected, the mean enrolment and Pupil Teacher Ratio (PTR) for the non-sampled schools are larger than those for the sampled schools. However, the results from two sample t-test unequal variance indicate that the two groups are similar on all four parameters (p=0.00 and alpha of 0.05). Also, the mean scores for Kiswahili PSLE 2019 and Kiswahili SFNA 2019 indicators for both sampled and non-sampled schools show insignificant effect, meaning that the performance of the sampled and non-sampled schools were almost equal.

2.3 Sampling Criteria

The sampling process called for a one stage sampling of schools, with each Standard II pupil in the sampled schools being assessed. The schools were stratified by region, resulting in 26 regions on Mainland Tanzania. Within each region, the schools were further stratified by council to create sub-strata by rural and urban localities. Within each sub-stratum, the schools were sorted based on the enrolment of Standard II pupils. The schools were randomly selected. Thus, there was a minimum of 20 schools per region, as well as a minimum of 2 and a maximum of 5 schools per council. The resulting sampled schools were selected using a probability proportional to the enrolment of Standard II pupils within each

[8]Primary School Leaving Examination mean scores
[9] Standard IV National Assessment

region, and the actual number of schools per council was proportionate to the contribution of the Standard II pupils in the council to the region. The requirements for a school to participate in the 2019 3Rs assessment were as follows:

(a) Public school or government school with a Standard II enrolment;
(b) Enrolment ranging from 25 – 150 pupils;
(c) Availability of pupils and readiness to take part in data collection at the specified time; and
(d) Located in an appropriate region and selected district.

2.4 Replacement Criteria

Out of the 524 selected schools for the study, 22 (4.2%) schools could not be reached or were excluded due to various reasons as indicated in Table 6:

Table 6: **Reasons for School Replacement**

	Reason(s)	No. of Schools
1	Upgraded to Secondary	1
2	Relocation to another Region/District	1
3	Large data inconsistency	1
4	Poor road infrastructure due to heavy rains	19
	Total	**22**

However, to maintain the probability proportionate of the sampled schools to the region enrolment contribution, the replacement criteria for the 22 schools were as follows:

(a) The school nearby the selected school was selected from the stratified list; and
(b) The replacement school should not exceed the enrolment of pupils of the school to be replaced by ±10%.

Data revealed that, the 22 schools matched the replacement criteria.[10]

2.5 Calculating Sample Size and Rationale

The sample was designed to be robust and adequate to generalise findings at the regional and national levels. Unlike in the 2013 and 2016 EGRA/EGMA studies, the current assessment increased the sample size in terms of the number of schools and pupils assessed in each school. Besides, the study used power calculations to determine whether the sample accurately represented the population and it was not biased due to the exclusion of schools with less than 25 pupils and more than 150 pupils. Based on the null hypothesis (H0) that there is no difference between the sampled and non-sampled schools, a t-test showed a significant difference between the sampled and non-sampled schools due to class size. However, to determine whether the effect existed from excluding the non-sampled schools, the power statistic was computed and revealed that the probability of accepting the null hypothesis was 100% at α=0.05. Thus, the calculated power was p=0.00, at α=0.05, hence indicating that there is no chance of rejecting the null hypothesis. These statistical analyses made NECTA confident that the selected 524 (324 rural and 200 urban) schools from the sample frame of 11,273 public schools were sufficient to allow any statistical calculations for the DLR 6.2 and 6.3 indicators with the 2016 study comparability.

For the 2016 study, the sample was increased to include all the regions of Mainland Tanzania. The EGRA and EGMA instruments were administered among 7,765 Standard III pupils who were randomly selected from 650 schools. The 2016 sample was derived to provide estimates of the pupils' performance at the national level (with disaggregation at gender and urban/rural levels). However, the 2016 study was postponed from the end of the 2015 school year to the start of the 2016 school year because of the October 2015

[10] Mean enrolment in Standard III of the 22 sampled schools was 65.8 whereas that of the replacement schools was 68.8. The study accepted H0 hypothesis of no difference in enrolment between the sampled and the replaced schools (*p=0.693, t=0.39, t critical= 2.01 – two tail at α = 0.05*).

elections. Accordingly, beginning-of-year Standard III pupils were the best possible approximation of the end-of-year Standard II pupils.

2.6 Verifying Sampled Schools

Before the actual data collection, each Assessor was assigned a school. The assessor verified the schools under his/her jurisdiction in collaboration with the respective District Education Officer (DEO) and District Academic Officer (DAO) by ensuring that all the schools selected met the requirements for the Assessment. If the school failed to meet the requirements, it was replaced based on the inclusion criteria described in Section 6.3 and the criteria specified in Section 6.2.

2.7 Final Sample Count

The 2019 study was expected to be conducted among Standard II pupils by the end of November 2019. However, the tight schedule of the National Examinations Council of Tanzania and other procedures, including funding, resulted in the postponement of the assessment process to January 2020. As such, the 2020 Standard III pupils were the best possible approximation of the end of 2019 Standard II pupils.

Data collection took place on 31/01/2020 and 01/02/2020. The data was collected at the council level in all the regions of Mainland Tanzania to allow the reporting of results at the national and regional levels. As described in the sampling criteria, the sample was proportionally selected depending on the contribution of the 2019 Standard II pupils to the council in the region. Data was collected from 524 schools among 28,816 pupils, of which 26,982 provided data using a paper-based scale. These were classified as the ‘scale group’. In contrast, 1,834 pupils provided data via the tablet. These were the ‘tablet group’. Among the 524 sampled schools, 42 schools were selected from 21 councils drawn from 26 regions from which data was collected using tablets, and 482 schools from which data was generated using the paper-based rating scale.

2.8 Marking and Data Capturing

The process of marking the Writing and Arithmetic assessments scripts followed the conveyor belt system. In this system, each marker dealt with only one question and passed the script to the next marker. However, scores for Reading and Oral Arithmetic assessment were recorded using the provided rating scale(s) and tablet(s).

The following steps were taken to verify data in the data entry process:

(a) The marked scripts were independently verified to ensure that each question was fairly marked and the total mark or score was accurately recorded into the computer system.
(b) After data entry, further validation was done by comparing the printout of each school with the scores on the pupils' scripts.
(c) The data captured by tablets were uploaded directly into the computer system and the printout documents showing the pupils' scores were printed and checked for completeness before being filed.

2.9 Data Cleaning

To clean the data, 2,692 (10%) scripts of the pupils who were assessed using the paper-based tool (scale) were drawn randomly. A team of verifiers went through each script, comparing the hard copies and the computer-generated records. After cleaning the data, a paired t-test was conducted to determine the relationship between the scores of the first entry (un-cleaned) and the second entry (cleaned) in both Reading and Arithmetic. The results of the test revealed that the correlation between first and second entries was 99.9 percent for both Reading and Arithmetic skills. Therefore, the margin of error for Reading and Arithmetic were 1.2 percent and 1.3 percent, respectively. The test of the relationship used to establish the similarities between the two datasets are as presented in Table 7, which reveals a high degree of precision during data entry and thus the reliability of the dataset:

Table 7: Relationship between first entry data and cleaned data

Skill	Mean		SD		Standard Error (SE)		Test of relationship				Remarks
	Un-cleaned data	Cleaned data	Un-cleaned data	Cleaned data	Un-cleaned data	Cleaned data	Pearson Correlation	P-Value	t Stat	t Critical two-tail	
Reading	13.08	13.09	8.47	8.47	0.166	0.166	0.99	0.2	1.26	1.96	No difference
Arithmetic	7.72	7.71	6.21	6.22	0.122	0.122	0.99	0.07	1.86	1.96	No difference

2.10 Data Weighting

The weight for data analysis was calculated as the inverse of the selection probability for each pupil to make the sample representative of the national population. One stage of weighting was used at the school level so that the sample of pupil scores could be representative of the overall national level of pupil performance. To account for disproportionate sampling, all the scores reported for this study were calculated using the pupil weight thus:

Pupils Weight =

$$\frac{\text{Number of Standard 2 pupils in the council}}{\text{Number of schools sampled in the council} \times \text{Number of Standard 2 pupils in the school}}$$

For the overall performance on each skill (e.g., Reading, Writing and Arithmetic) at the regional and national levels, the performance was calculated based on the pupils' weight at the school level. Furthermore, the SPSS software was used to weight all the cases.

2.11 Data Analysis

In this report, whenever possible, the 2019 3Rs assessment is compared with historical performance data and the 2020 targets set based on the baseline data. Table 8 summarises the historical performance data on each of the key indicators against the 2020 targets:

Table 8: **Performance against the EPfR indicators of EGRA/EGMA**

S/N	EP for R Indicator	2020 Target	Baseline 2013	Midline 2016
1	Kiswahili reading speed in wpm	20	17.9	23.6
2	% correct answers in Addition/Subtraction Level II	22%	22.6%	26.8%

For EGRA/EGMA comparability purpose, data for pupils with special needs were excluded from the analysis. However, each of the EPfR indicator score was calculated as the weighted mean of all the pupils' scores on the corresponding assessment task in the 2019 3Rs study. In calculating both the reading fluency (speed) (CWPM – correct words per minute) and the addition/subtraction Level II scores, omitted words and unanswered addition and subtraction items were treated as incorrect responses.

2.12 Equating Study

To ensure the comparability of results particularly for the segment of the tool that addressed DLR 6.3, an equating study was conducted to ensure that the reading passage used had equivalent level of difficulty to the passage that was used in the study conducted by Research Triangle Institute (RTI) in 2016. Comparing the two passages revealed that the passage, which was used in the 2019 study, had an equivalent level of difficulty to the one, which was used in the 2016 RTI study.

The procedure for conducting the equating study involved the administration of the two newly-prepared reading passages alongside the 2016 passage that was used in the RTI study. The pilot design consisted of the three passages which were administered in simultaneously. The order of administration of passages within each form was randomised to reduce the testing effects.

The assessment was administered among 120 randomly selected pupils from six schools in Dar es Salaam Region. The means and

standard deviations of the oral reading fluency scores from each of the passages were computed as shown in Table 9:

Table 9: **Mean Oral Reading Fluency Scores by Passage**

2016 Passage	2019 Passage 1	2019 Passage 2
26.71	33.19	36.53
(11.19)	(10.84)	(11.20)

Standard deviations in parentheses ()

The mean oral reading fluency rates show that, the 2016 passage was more difficult than Passages 1 and 2. Based on the $1/10^{th}$ of a standard deviation rule (i.e., approximately 1.08 to 1.12 words per minute), the error associated with equating is lower than the difference that is accounted for by equating. This result prompted equating the passages with the 2016 study by RTI. Linear equation was used as a preferred approach to equating (for simplicity). The results of the equating are as presented in Table 10:

Table 10: **Mean Equated Oral Reading Fluency Scores by Passage**

2016 Passage	2019 Passage 1	2019 Passage 2
26.71	26.71	26.58
(11.19)	(11.19)	(11.46)

Standard deviations in parentheses ().

Results in Table 10 show that the level of difficulty of the passage in the RTI study and passage 1 were equally comparable to passage 1 of the 2019 study. Thus passage 1 of the 2019 study was preferred for Reading Fluency Assessment in the 2019 study.

On the one hand, the Arithmetic assessment tested the pupils' competencies in identifying missing numbers, adding and subtracting numbers less than 999 in addition to solving word problems. On the other hand, the Writing skill assessment included

writing dictation, identifying capital and small letters and rewriting unpunctuated passage using appropriate punctuation marks.

2.13 Tools for Assessing Reading, Writing and Arithmetic

The tools for the Standard II National Assessment of 3Rs were prepared in accordance with the 2015 curriculum. The Reading skill assessment consisted of a passage with 50 words. The pupils were required to read them in one minute to assess their fluency. All the pupils who managed to read 38 to 50 words per minute were considered to have acquired a very good performance in reading. The same passage was used for assessing the pupils' ability to read for comprehension.

Moreover, during the oral assessment of the Reading skill, the assessor assessed the Arithmetic skill (addition and subtraction Levels I and II) so that the pupil could respond orally. To improve efficiency in the oral assessment of the Reading and Arithmetic skills, tablets were used to support the paper-based oral assessment in the selected councils and schools. This technology employed the same methodology adopted during the paper-based oral assessment.

In addition to assessing 3Rs, questionnaires were distributed to the head teachers and assessors for them to provide information on the teaching and learning environment and the availability of materials for 3Rs' teaching and learning activities.

2.14 Appointment and Training of Trainers

The training of assessors in the 2019 3Rs assessment was the most important factor in ensuring that the data collected meets the required standards. Therefore, the National Examinations Council of Tanzania (NECTA) appointed 234 experienced examiners from NECTA and district councils. These examiners were trained for three days. They were then expected to cascade the training at their respective council levels.

The selected trainers were mostly graduates in education with a few having diplomas in education. All the selected trainers were required to have a minimum of three years' experience in any of the council's

activities such as setting of examinations, moderation of examinations, invigilation of the examinations and marking of the examinations conducted by the Council. The appointment of these examiners was done purposively to ensure easy understanding during the training because of their experience in handling assessment tasks.

The training was planned and conducted by the 3Rs Assessment Technical Team. Specific training manuals were prepared for the training to ensure that all the trainers had the same understanding of the procedures for the assessment.

During training, attention focused on how to use the assessment tools particularly the timing devices. Two types of tools were used during the assessment: Paper-based tool (also called scale) and tablets. Timers were used for the former to ensure comparability with the data that was collected using tablets that had automatic timers to measure the number of words the pupils read in a minute. Role plays served as part of the training methodology to ensure that the same procedure for leading the pupils during oral reading and oral arithmetic sessions were followed to ensure similarity in the data collection methods. Evaluation questions were also used to assess the trainers' understanding of how to conduct assessment. The training culminated in an assessment of the trainers to measure their suitability for participation in training of the assessors. A video of a pupil reading the assessment passage was played for the trainers to rate the reader in the video. The ratings of the participants were reviewed by the technical team to evaluate their rating accuracy. Only those, who passed the assessment, were appointed as trainers of the assessors. Successful participants were then posted to the 186 councils to train the assessors.

2.15 Appointment and Training of Assessors

Each of the successful trainers was posted to one of the 186 councils on Mainland Tanzania. The National Examinations Council, through its Regional and District Examination Committees, appointed qualified and experienced teachers particularly those who teach in lower classes to attend the training as assessors. Significantly, priority was given to those who were involved in the

3Rs assessments in the previous years. The choice of experienced teachers was adopted because they had a good understanding of how to deal with pupils at this level of education. The training of assessors lasted for four days. Special manuals for the assessors were deployed during the training. To ensure uniformity during data collection, assessors were instructed to use similar language patterns, which were specified in the training manual. The first day was scheduled to guide the assessors on conducting paper and pencil assessment for Writing and Arithmetic. On the second day, the assessors were trained on using timing devices (timer) while at the same time tracking and rating the reader. Role plays were used to practise these skills.

The third and the fourth days were for more practice to assess oral reading and oral arithmetic skills. At this stage, pupils from schools that were not on the sample list were used. The pupils read the passage and the assessor rated them. The practice involved assessing Reading and Arithmetic separately; then, after all the assessors had been acquainted, all the skills (Oral Reading and Arithmetic) were rated in one sitting to reflect the reality during assessment. Eventually, the assessment of the assessors was done to evaluate their competencies in data collection. A video of a pupil reading the same passage, which was used in the assessment, was played and the assessors rated and filled the assessment form out. Only successful assessors were selected to participate in the actual assessment.

2.16 Limitations

The training for facilitators and assessors were planned for four days. However, time constraints prompted a reduction of such training for facilitators to three days whereas the assessors were trained for four days. In addition, the data collection process was affected by the weather condition that led to a change in some of the sampled schools as provided for in the guidelines.

CHAPTER THREE
RESULTS

3.1 Introduction

This chapter presents the study findings of the assessment of skills for each of the 3Rs. For clarity, figures and tables are used for illustrations. Reading skills results are presented first followed by Arithmetic skills and, lastly, Writing skills results. The chapter also presents results from the questionnaires administered with head teachers and 3Rs teachers on the availability of teaching and learning resources for 3Rs in particular and teaching and learning environment for 3Rs in general.

3.2 Benchmarks and Annual Targets in Reading and Arithmetic

The national Benchmarks and Targets for Reading and Arithmetic were initially set after the National 3Rs study, which was conducted in Tanzania in 2013. The aim was to establish an understanding of early grade pupils' performance in Reading, Writing and Arithmetic across Tanzania. The national benchmarks provide the levels for foundational skills in Reading and Arithmetic for Standard II pupils. Similarly, the annual targets indicate the percentage of pupils meeting each benchmark as well as the percentage of pupils scoring zero on each indicator. The indictors are ORF and RC, addition and subtraction Level II and missing numbers. The benchmarks are shown in Table 11:

Table 11: National Benchmarks and Annual Target for Reading and Arithmetic for Standard II Pupils

Reading	Benchmark	Percentage of Standard II Pupils at Benchmark							
		2013 Actual	2014 Target	2015 Target	2016 Target	2017 Target	2018 Target	2019 Actual	5-Year Target
Oral Reading Fluency	50 correct words per minute	4.70%	14%	17%	21%	28%	45%	5.20%	45%
Oral Comprehension	80%	8.10%	10%	13%	17%	24%	40%	38.70%	40%
Reading		Percentage of Standard II Pupils Scoring Zero							
		2013 Actual	2014 Target	2015 Target	2016 Target	2017 Target	2018 Target	2019 Actual	5-Year Target
Oral Reading Fluency		27.7%	27%	26%	24%	21%	14%	15.6%	14%

Oral Comprehension		40.3%	39%	37%	35%	31%	21%	23.4%	20%
Mathematics	**Benchmark**	**Percentage of Standard II Pupils at Benchmark**							
		2013 Actual	**2014 Target**	**2015 Target**	**2016 Target**	**2017 Target**	**2018 Target**	**2019 Actual**	**5-Year Target**
Addition and Subtraction Level 2	80%	8.2%	10%	13%	16%	22%	36%	17.10%	35%
Missing Number	60%	8.3%	10%	13%	16%	22%	36%	39.10%	35%
Mathematics		**Percentage of Standard II Pupils Scoring Zero**							
		2013 Actual	**2014 Target**	**2015 Target**	**2016 Target**	**2017 Target**	**2018 Target**	**2019 Actual**	**5-Year Target**
Addition and Subtraction Level 2		43.4%	42%	40%	37%	32%	21%	22.8%	20%
Missing Number		10.9%	10%	10%	9%	8%	6%	24.1%	5%

Source: RTI, 2016

3.3 Reading Skills Assessment Results

The reading assessment consisted of two sub-tasks: Oral Reading Fluency and Reading for Comprehension. The reading assessment tool was individually and orally administered in Kiswahili. Each pupil took about 10 minutes to accomplish the assessment.

This section presents the results of the Reading assessment. It starts at the national level and further disaggregates the results by category of readers, gender, region, and by rural/urban localities.

3.3.1 National Mean Scores on Reading Subtasks

A sufficient reading speed, accuracy and comprehension are features of good reading skills. The number of correct words per minute is also an important indicator for EPfR. Table 12 presents the national scores on ORF CWPM and RC. The results indicate that the mean scores for ORF improved to 26.18 CWPM in 2019 from 23.6 CWPM in 2016. Further analysis based on gender reveals higher scores for girls than for boys in ORF. Whereas girls achieved the mean score of 28.06 CWPM, boys achieved 24.24 CWPM.

Table 12: National Mean Scores on Oral Reading Fluency Sub-tasks

Subtasks		2019 National 3Rs Study		
	ÉPfR 2019 Targets	Overall National Scores	Scores by Gender	
			Boys	Girls
Oral Reading Fluency (CWPM)	20	26.18 (±0.02)	24.24 (±0.04)	28.06 (±0.03)
Reading Comprehension	-	13.01 (±0.01)	12.41 (±0.02)	13.59 (±0.01)

Margin of error in parentheses ()

3.3.2 Proportion of Pupils as per Tanzania Benchmarks on Reading Sub-tasks

The established national benchmarks are 50 CWPM for ORF and 80 percent[11] for RC. Data was analysed to determine the percentage of pupils who managed to perform at the Tanzania Benchmarks on the two reading sub-tasks. In addition, a comparison with the two previous studies, the 2013 3Rs baseline study and the 2016 EGRA/EGMA study was made to determine the extent to which progress towards achieving the set goals has been made. It was noted that the EPfR target for ORF was to achieve 20 CWPM. The 2019 study mean scores exceeded the target by 6.18 words.

However, the percentage of pupils attaining the benchmark of 50 correct words per minute has been fluctuating between 4.7 percent and 6.5 percent since 2013 as shown in Table 13 and Figure 1:

[11] Note that the Oral Reading Fluency (ORF) sub-task for the 2019 3Rs Study comprised only 50 words in the passage. The previous studies had more than 50 words in the passage but only 50 were timed. In that case, the current study showed no variability between the scores for those who managed to read 50 correct words per minute. This implies that a 95 percent confidence interval will only contain the same value for upper and lower confidence intervals.

Table 13: Proportion of Pupils at the Tanzania Benchmarks for Reading Sub-tasks

Reading Subtasks	Benchmark	2013 National 3Rs Study	2016 Tanzania National EGRA	2019 National 3Rs Study
Oral Reading Fluency	50 Correct words per minute	4.7% (±2.4)	6.5% (±0.8)	5.2% (±0.0)
Reading for Comprehension	80% Correct	8.1% (±3.3)	12.1% (±1.1)	38.7% (±0.1)

Margin of error in parentheses ()

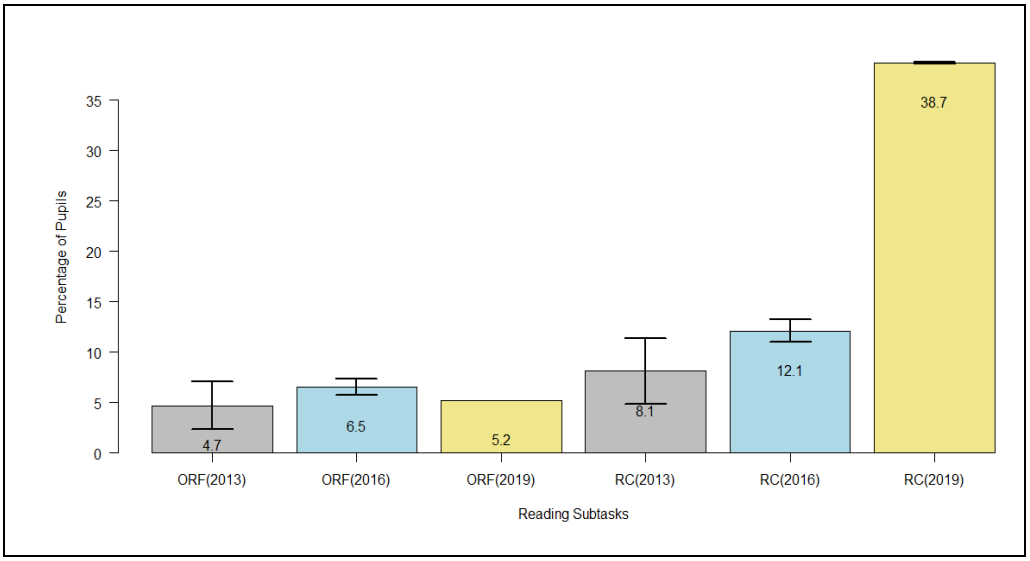


Figure 1: *Percentages of pupils scoring at the Tanzania benchmarks for the two reading sub-tasks*

Based on the 2013 Baseline, 2016 EGRA/EGMA and 2019 NECTA's assessment the targets in all the three years were not met as indicated in the National Benchmark and Annual Targets in Reading for Standard II pupils. These National Benchmark and Annual Targets were 14 percent, 21 percent and 45 percent for 2013, 2016 and 2019, respectively.

For RC, the pupils who attained the 80 percent benchmark were 8.1 percent, 12.1 percent and 38.7 percent in 2013, 2016 and 2019 respectively. The annual targets for the respective years were 10 percent (2013), 17 percent (2016) and 40 percent (2019). The performance in RC improved compared to the previous years. Although the RC targets for 2013 and 2016 were not met by 1.9 and 4.9 percent,

respectively, it was noted that, in 2019, the pupils who attained the 80 percent in the RC benchmark rose from 12.1 percent (2016) to 38.7 percent (2019). This presents a huge improvement though the target was not met by 1.3 percent.

3.3.3 Annual Target and Actual Results for Reading Sub-task Zero Scores

As an indication of a shift by the population from non-readers to beginning readers, previous studies analysed the decline in the proportion of pupils that scored zero on both reading sub-tasks. Table 14 shows the annual target and actual results for reading sub-task zero scores over years, compared with those of current study.

Table 14: **Annual Target and Actual Results for Kiswahili Reading Sub-task Zero Scores**

Reading Sub-tasks	2013 Baseline Study	2016 Tanzania National EGRA	2019 National 3Rs Study	2018 Target	Year 5 Target
Oral Reading Fluency	27.7% (±7.3)	16.1% (±1.9)	15.6% (±0.1)	14%	14%
Reading Comprehension	40.3% (±7.6)	25.9% (±2.2)	23.4% (±0.1)	21%	20%

Margin of error in parentheses ()

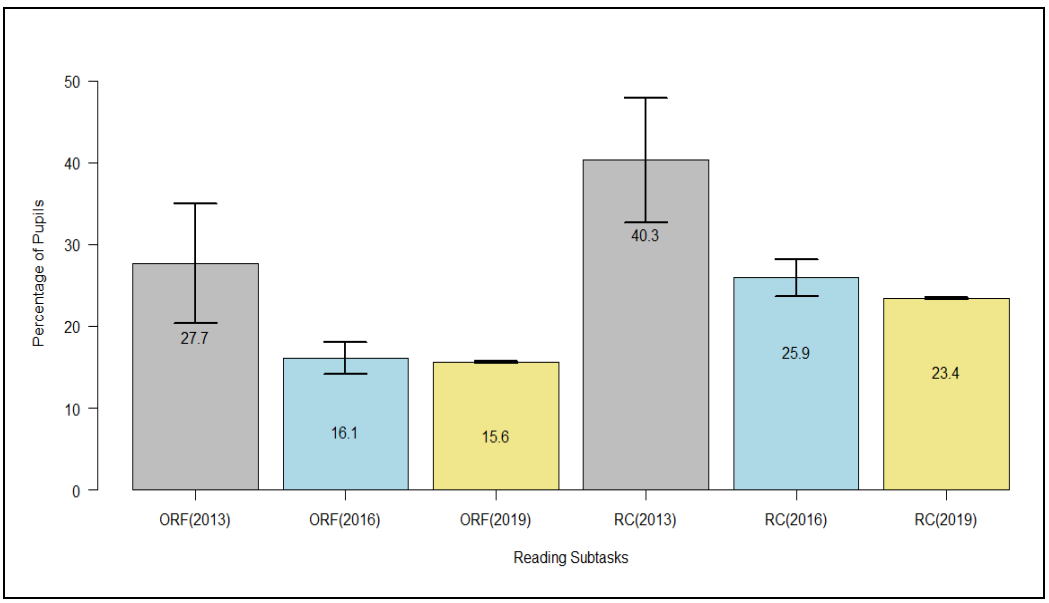


Figure 2: *Percentages of pupils who scored zero on the two reading sub-tasks*

The data shows that the actual results for Kiswahili reading sub-tasks in zero scores have been decreasing yearly, despite the 2019 targets not having been met (Table14 and Figure 2). On the other hand, this steady reduction in the number of pupils who scored zero indicates good progress. Therefore, the efforts that the Government is making in improving the teaching and learning process are yielding positive results.

In addition, for RC there is also an improvement, which is exemplified by the reduction of percentages of zero scores. In the 2013 Baseline study, the percentage of zero scores in RC Kiswahili sub-tasks was 40.3 percent. Findings in the subsequent EGRA/EGMA study of 2016 indicated a decrease in the percentage of zero scores from 40.3 to 25.9 percent. A further decrease by 2.5 percent was reported in the 2019 study. However, the set targets for both ORF (14%) and RC (20%) were not achieved.

3.3.4 Categories of Readers

Further analysis of the performance of pupils on reading subtasks used the four categories of readers like those used in the 2016 EGRA/EGMA. The categories include non-readers, beginning readers, progressing readers and proficient readers. Those who could not read a single word in the passage were categorised as non-readers whereas those who could read from 1 word to 29 words were grouped as beginning readers. Pupils who could read 30 words and above per minute were classified as progressing readers and those who could read all 50 words per minute and achieved 80 percent or higher in comprehension were treated as proficient readers.

To establish whether progress was made since the 2013 baseline study was conducted, a comparison of scores in each category was made. Table 15 shows the results which are also illustrated further in Figure 3:

Table 15: Proportion of Readers by Category and Year

Category	Types of Readers	Characteristics	Percentage of Pupils		
			2013 Study	2016 Study	2019 Study
1	Non-readers	Unable to read a single word of the passage	27.70%	16.10%	15.60%
2	Beginning readers	Can correctly read between 1 and 29 words of the passage in one minute	46.90%	47.80%	37.20%
3	Progressing Readers	Can correctly read at least 30 words of the passage in one minute	22.00%	30.80%	42.70%
4	Proficient Readers	Can correctly read exactly 50 words of the passage in one minute and with 80% or higher comprehension	3.4%	5.30%	4.5%

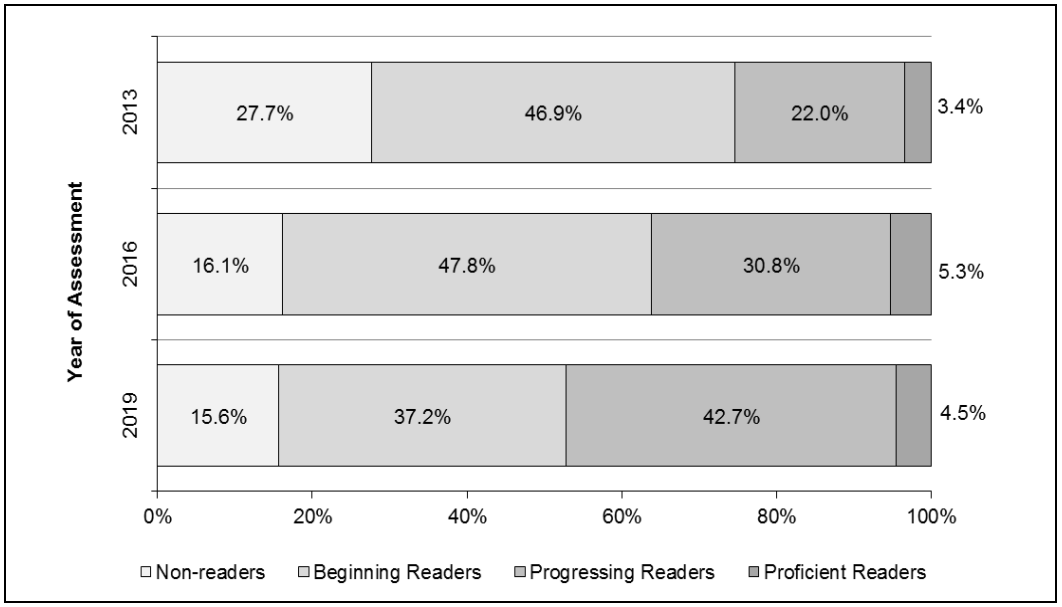


Figure 3: *Proportion of readers by category and year*

These findings, relative to those of the 2013 baseline and 2016 EGRA/EGMA studies, indicate that progress had been made in reducing the percentages of lower categories of readers (non-readers and beginning readers). Indeed, these results depict a steady decrease in the percentages of non-readers from 27.70 to 16.10 and 15.6 percent in 2013, 2016 and 2019, respectively.

More significantly, the category of beginning readers has significantly declined in all the studies. Thus, the category of progressing readers has increased significantly from 22 percent in 2013 to 42.7 percent in 2019. However, the proportion of top performers (proficient readers) decreased by a small margin of 0.8 percent between the 2016 and 2019 studies.

3.3.5 Distribution of Scores on Reading Subtasks

Based on their performance, the pupils were classified in four levels: Poor Performers, Average Performers, Good Performers and Very Good Performers, as summarised in Figure 4:

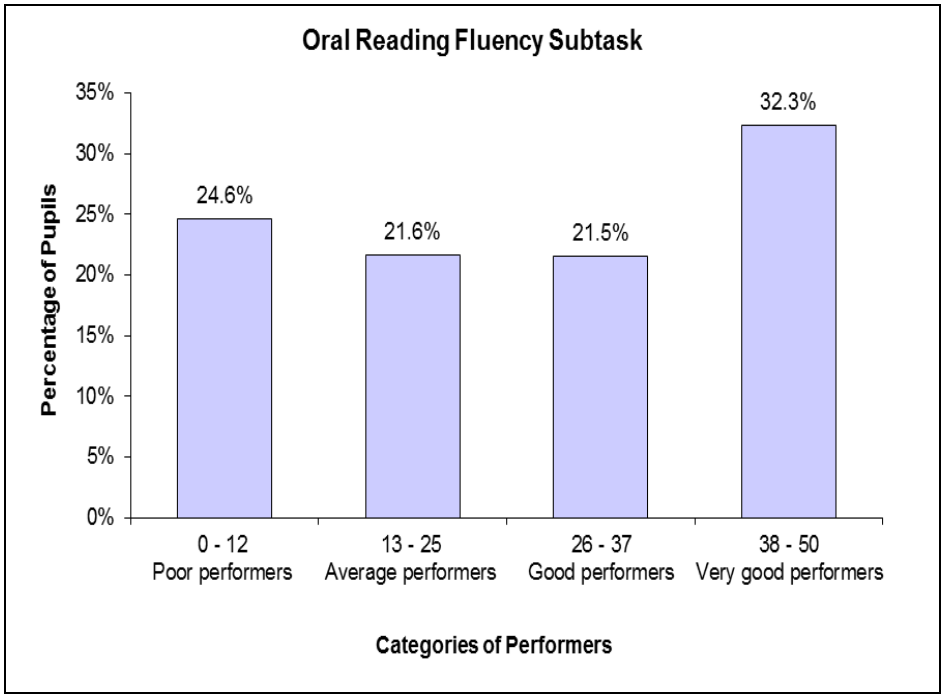


Figure 4: *Distribution of pupils' scores on the oral reading fluency subtask*

Figure 4 shows that more pupils (32.3%) were able to read from 38 to 50 CWPM compared to the poor performers (24.6%), average performers (21.6%) and good performers (21.5%). Generally, 53.8 percent of the pupils had good reading ability.

In the RC subtask, the pupils were tested after reading the same passage. Five questions, four factual and one inferential were used to test the pupils' comprehension skills. Their performance was measured by the number of correct responses. Performance was also classified

into four groups: Poor performance, Average performance, Good performance, and Very good performance.

Pupils performed poorly if they could not respond correctly to more than one question. Their performance was categorised as average if they responded correctly to two or three questions. The performance of the pupils was good if they were able to respond correctly to four questions, and the performance was very good if they responded correctly to all the five questions. Figure 5 shows the distribution of pupils' performance on the four categories:

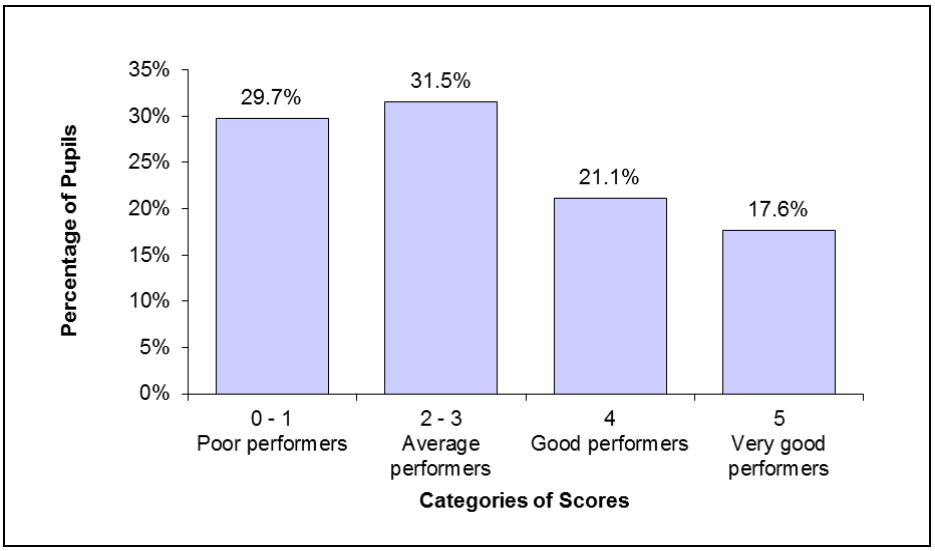


Figure 5: *Distribution of pupils' scores on the reading comprehension sub-task*

Figure 5 shows that 38.7 percent of pupils were able to respond correctly to four or five questions. This shows that more than one-third could comprehend 80 percent or more of the passage content. It was also established that 29.7 percent did not perform well. Among those poor performers, 23.4 percent could not respond correctly to all the five questions. The findings also show that 31.5 percent of the average performers responded correctly to two or three questions.

Table 16 and Figure 6 show that more pupils were poor performers and average performers than those belonging to higher performance levels.

In the two categories (Good and Very Good), girls comprehended the text better (40.6%) than boys (36.9%)[12].

Table 16: Distribution of Comprehension Scores by Gender

Gender	Categories of Scores			
	0 - 1	**2 - 3**	**4**	**5**
Boys	32.9 (±0.1)	30.2 (±0.1)	20.5 (±0.1)	16.4 (±0.1)
Girls	26.6 (±0.1)	32.9 (±0.1)	21.7 (±0.1)	18.8 (±0.1)

Margin of error in parentheses ()

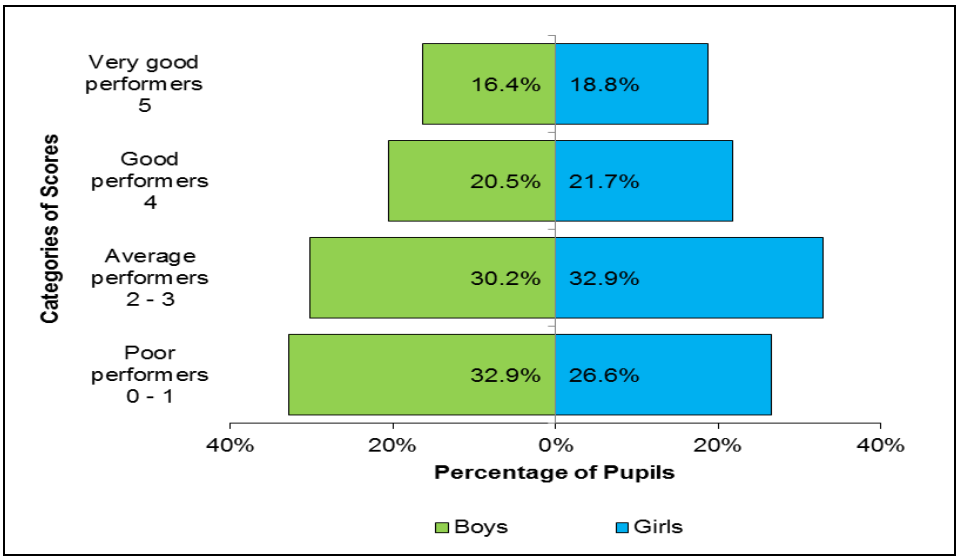


Figure 6: *Distribution of reading comprehension scores by gender*

In terms of the rural and urban settings, the data indicates that pupils from urban settings performed better than their rural-based counterparts in both reading (Mean = 28.28 CWPM, SD = 16.6 against M = 24.83 CPWM, SD = 7.0) and comprehension (Mean = 14.17, SD = 8.8 for girls, Mean = 12.27, SD = 9.1 for boys). The difference in reading and comprehension is statistically significant (p=0.00, α =0.05). With regard to the proportion of pupils who scored zero on reading sub-tasks (Table 17, Figure 7), results show that more pupils from rural schools scored zero on ORF (10.7%) and RC (15.9%) than those from

[12] A significant association was found between the categories of scores in comprehension across gender, $x^2(3,1771513) = 8683.8, p=00.$ Girls are more likely than boys to comprehend.

urban schools who scored 4.9 percent and 7.5 percent on the two tasks.

Table 17: **Proportion of Pupils Scoring Zero on Reading Sub-tasks by Locality**

Reading Sub-tasks	2019 National 3Rs Study				5-Year Target
	Overall National Scores		Scores within Localities		
	Urban	Rural	Urban	Rural	
Oral Reading Fluency	4.9% (±0.0)	10.7% (±0.1)	12.5% (±0.1)	17.6% (±0.1)	14%
Reading Comprehension	7.5% (±0.0)	15.9% (±0.1)	19.3% (±0.1)	26.0% (±0.1)	20%

Margin of error in parentheses ()

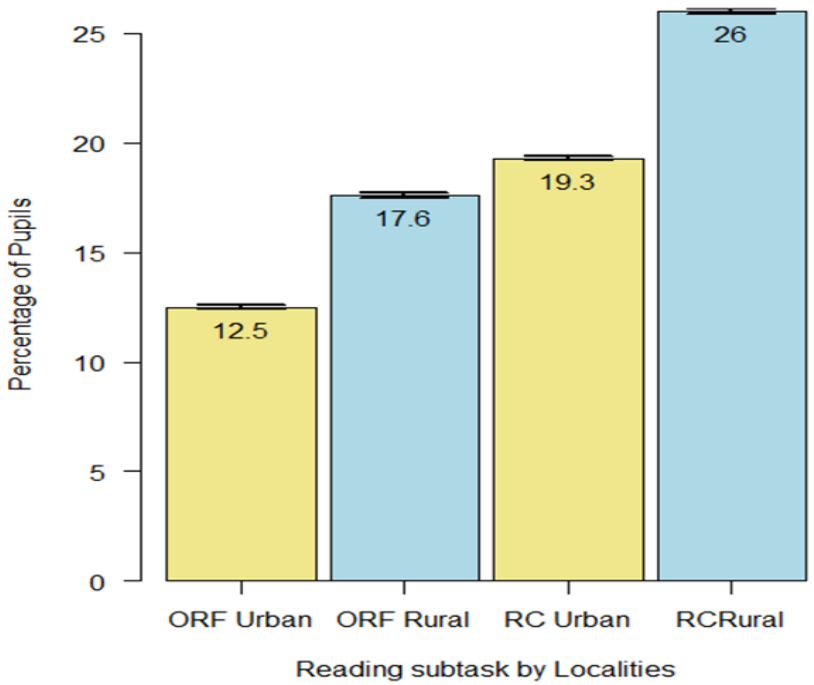


Figure 7: *Proportion of pupils who scored zero on reading sub-tasks by locality*

3.3.6 Performance of Pupils on Reading Sub-tasks by Gender

The data was further analysed based on gender to compare the performance of the two groups of pupils. The performance of pupils in each category is as presented in Table 18.

Table 18: **Proportion of Pupils by Category of Readers and by Gender**

Category	Type of Reader	Characteristic	2016 Study		2019 (20) Study	
			Girls	Boys	Girls	Boys
1	Non-readers	Unable to read a single word of the passage	15.4%	16.9%	13.8%	17.5%
2	Beginning readers	Can correctly read between 1 and 29 words of the passage in one minute	45.1%	50.7%	33.7%	40.8%
3	Progressing readers	Can correctly read at least 30 words of the passage in one minute	33.2%	28.2%	47.1%	38.1%
4	Proficient readers	Can correctly read exactly 50 words of the passage in one minute and with 80% or higher comprehension	6.3%	4.2%	5.4%	3.6%

Table 18 shows that girls performed better than boys in all the categories[13]. Moreover, girls improved in all the categories with the exception for the proficient readers' category as their percentages decreased from 6.3 to 5.4 percent. Boys improved by 9.9 percent in the two categories: Beginning readers and Progressing readers.

3.3.7 Performance of Pupils by Location (Rural versus Urban)

Further analysis was conducted to assess whether there were significant differences in performance between pupils in rural and those in urban schools. Out of the 524 sampled schools, 324 were rural and 200 were urban based. The comparison of urban and rural schools was based on the previous experience of the availability of resources particularly the distribution of human resources (teachers). Teacher deployment data demonstrated that urban areas had better teacher-

[13] A significant association was obtained between categories of readers and gender, $x^2(3,1771513) = 21782.6$, p = 00, hence indicating that girls are better in reading than boys.

pupil ratios than their rural counterparts.[14]. Table 19 summarises the category of readers by their locality:.

Table 19: **Proportion of Pupils by Category of Readers and by Locality**

Category	Type of Reader	Characteristic	2019 Study	
			Urban	Rural
1	Non-readers	Unable to read a single word of the passage	12.5%	17.6%
2	Beginning readers	Can correctly read from 1 to 29 words of the passage in one minute	34.9%	38.6%
3	Progressing readers	Can correctly read at least 30 words of the passage in one minute	46.9%	40.0%
4	Proficient readers	Can correctly read exactly 50 words of the passage in one minute and with 80% or higher comprehension	5.7%	3.8%

As Table 19 illustrates, in all the categories of readers, pupils in urban schools performed better than those in rural schools. Urban schools have 81.8 percent of pupils who are beginning and progressing readers compared to 78.6 percent of such pupils in rural schools. Likewise, in the proficient readers' category, urban schools performed better by 5.7 percent compared to 3.8 percent of proficient readers in rural schools. The percentages of progressing readers from the schools located in urban settings stand at 46.9 percent[15].

[14] The available data shows that the number of teachers deployed by the government is not keeping pace with the rapid increase in primary school enrolment, largely due to the recent FFBE policy. This challenge is evident in the fluctuating national primary school pupil/teacher ratios from 2015/16 to 2018/19 as follows: 2015/16 – (1:51; 2016/17 – (1:48), 2017/2018 (1:52) and 2018/2019 – (1:55). Policy-makers are making concerted efforts to implement initiatives that are aimed at reducing the inequalities and inefficiencies in the distribution of teachers.

[15] A significant relationship was found between readers category and localities (Urban/Rural), *$x^2(3,1771513) = 16327.9, p=.00$. This signifies that urban areas have more pupils with good reading skills than rural areas.*

3.3.8 Performance of Pupils on Reading Sub-tasks by Regions

For the oral reading fluency sub-task (Figure 10), 11 regions performed between 5.7 and 10.0 percent, which is above the national average (5.2%). Twelve (12) regions performed between 4.5 and 8.6 percent, which is also above the national average (4.5%) in the RC sub-task (Figure 8). The 12 regions that performed above the national average on RC also performed above national average on ORF; however, Arusha performed better on RC than on ORF.

The scores on the two sub-tasks were further analysed by combining the two and computing a new national average. Results indicate a similar trend to that found in the separate analysis of ORF and RC. The regions that performed above national average on ORF and RC also had good performance when the two sub-tasks were combined. Five of the regions, however, had extremely low percentage of pupils who scored at set benchmarks (figures 8, 9 and 10).

Figures 11 and 12 (see Appendices 1 and 2) present the regional distribution of ORF and RC mean scores by gender. The variability between girls and boys in both sub-tasks are highlighted in these figures. Regions such as Iringa, Morogoro, Dar es Salaam, Kilimanjaro and Tanga present clear differences in their performance on ORF between girls and boys. The same scenario is almost evident in the RC sub-task.

The regional performance trends show that, in ORF, Singida registered the highest improvement of 4.2 percent whereas Ruvuma had the lowest improvement of 0.1 percent. In contrast, Dar es Salaam had the highest decline of 7.6 percent whereas Shinyanga registered a minor slump of by 0.2 percent. Similarly, on the RC sub-task, all the regions showed improvements of between 16 and 43 percent, with Morogoro Region showing the highest improvement and Arusha the least. Appendix 8 shows how the regions performed relative to the 2016 study.

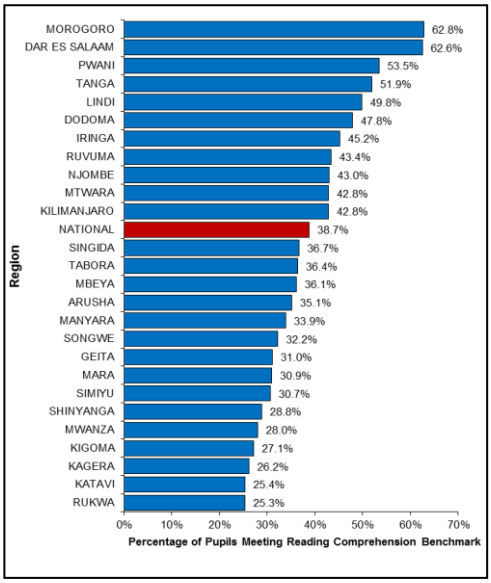


Figure 9: *Regional performance on RC*

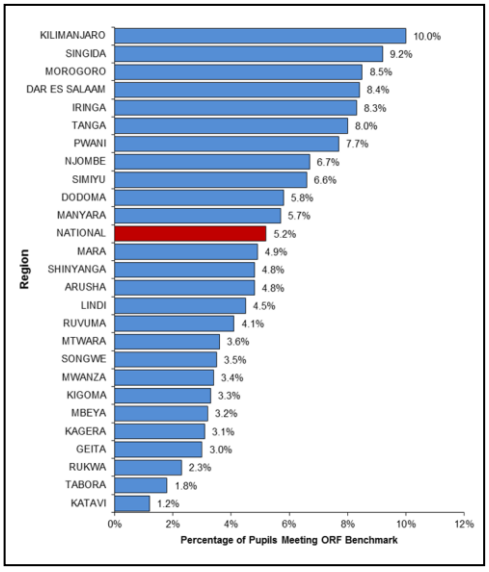


Figure 8: *Regional performance on ORF*

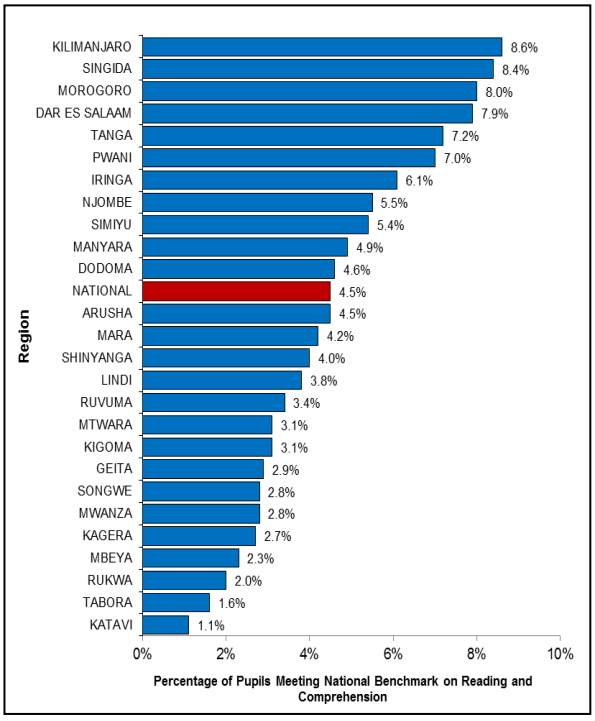


Figure 10: *Regional percentages of pupils who met the RC Benchmark*

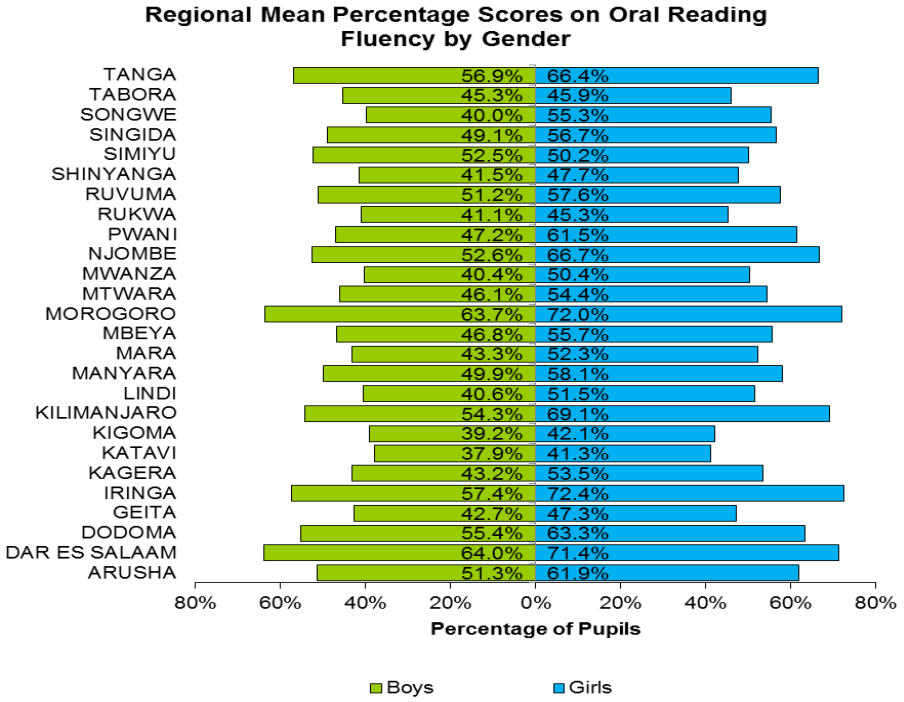


Figure 11: *Regional distribution of scores on the ORF sub-task by gender*

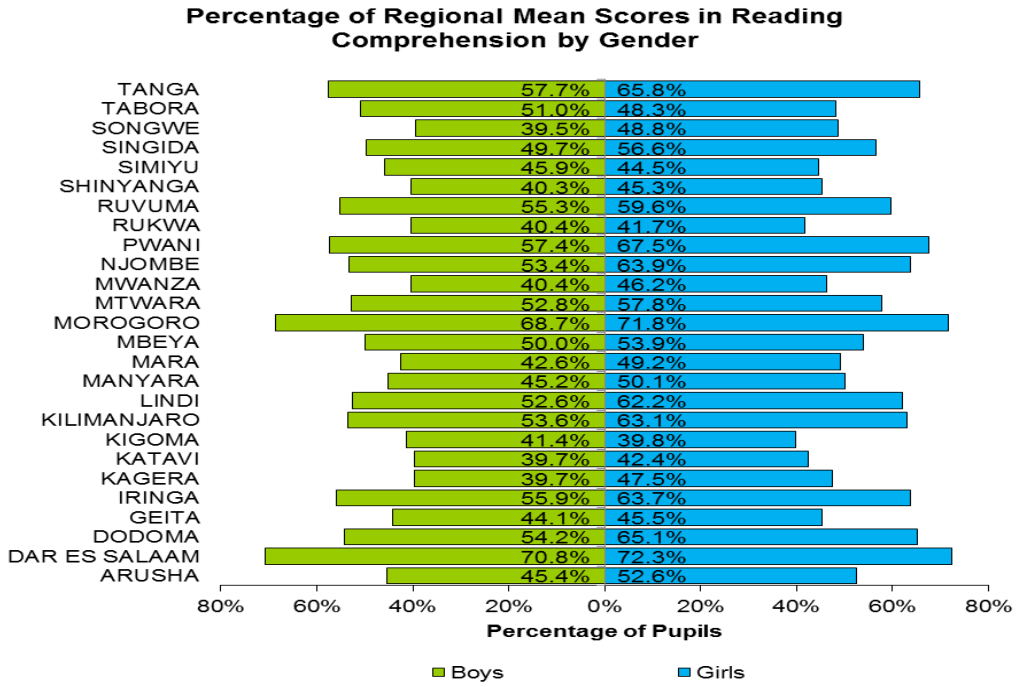


Figure 12: *Regional distribution of scores on the Comprehension sub-task by gender*

3.3.9 Analysis of Item Difficulty in Reading Skills Sub-tasks

The analysis of items' difficulty was done by establishing how the pupils performed during each reading sub-task. The analysis of the ORF performance helped to establish the percentages of the correct reading of each word. In this regard, the study findings indicate that the pupils found the word *Ng'alo* more difficult to read. Although the word is located early in the passage, the percentage of correct reading is lower. Indeed, the pupils found it difficult to pronounce the word because it has a syllable that is composed of a *nasal sound Ng'a*. The word *Subira* also seemed difficult for many of the pupils. This difficulty can be associated with the mother-tongue effects; most of the pupils pronounced it incorrectly as *Subila*. It has also been noted that pupils had difficulties in pronouncing words that were composed of consonant clusters such as *alishindwa*, *amechomwa* and *hospitali*. Furthermore, the percentages of the correct words read decreased towards the end of the passage. This implies that most of the pupils could not read them because the allotted time ended before they could read them (see Figure 13).

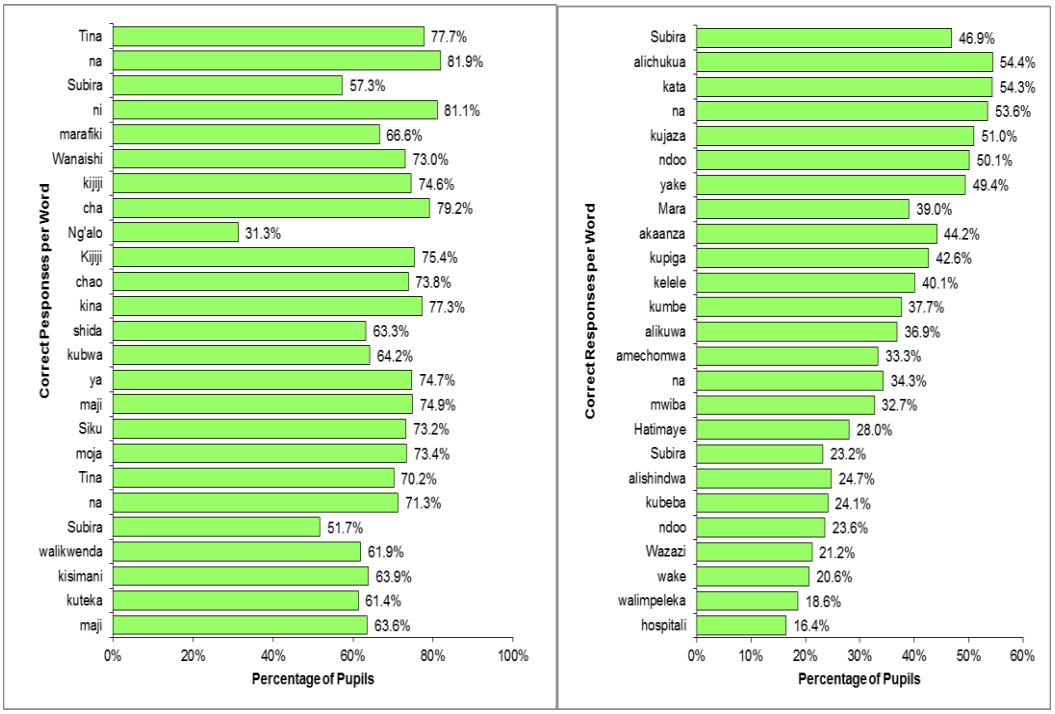


Figure 13: *Percentages of correct attempts on each word in the passage*

With regard RC, findings indicate that the performance of the pupils on three questions that required them to recall names and make inference was better than on two questions that required them to recall factual information (Figure 14). In fact, *Ng'alo* was also a difficult word to understand when it served as a response to the question; only 38.4 percent of the pupils got it right. The pupils also found it difficult to recall the name of the utensil that *Subira* used to draw water from the well. This is signified by the lower percentages of the correct responses (35.8%). Figure 14 illustrates the responses of the pupils to each question in the RC sub-task:

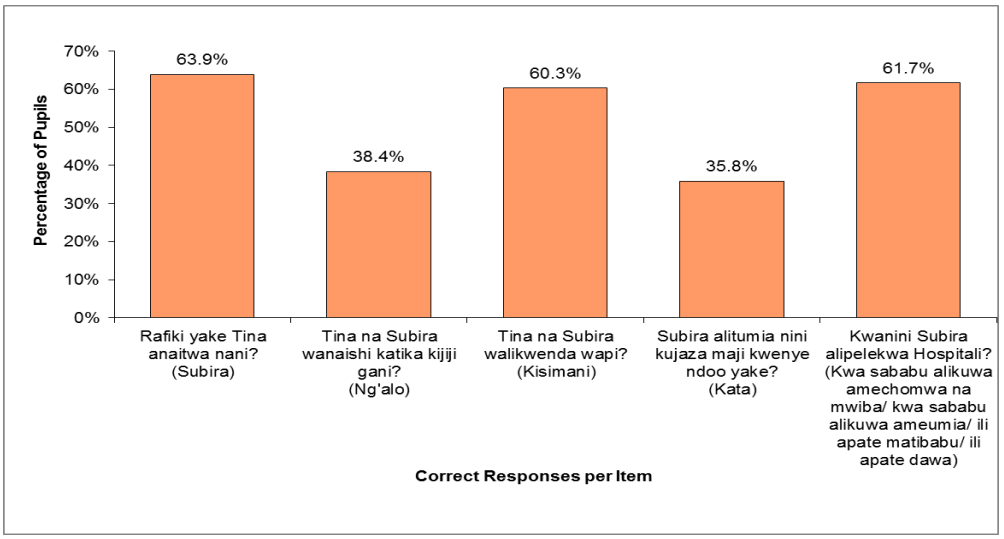


Figure 14: *Percentages of correct responses to each question in the RC subtask*

3.4 Arithmetic Skills Assessment Results

The Arithmetic assessment consisted of three sub-tasks: Addition and Subtraction at Level II, Missing Number and Word Problem Solving. Addition and Subtraction Level II were tested orally alongside ORF whereas the Missing Numbers and Word Problems were administered through paper and pencil instruments. Addition and Subtraction at Level II consisted of 10 questions: Five questions for each addition and subtraction Level II. Each of the remaining sub-tasks (Missing Numbers and Word Problems) consisted of five questions.

This section presents the results from the Arithmetic Skills assessment. It starts at the national level and further disaggregates the results by category of performer, gender, region and rural/urban localities.

3.4.1 National Mean Scores on Arithmetic Sub-tasks

The percentages mean scores show that the performance of pupils on the missing numbers and Word Problems sub-tasks were not significantly different. However, the performance on Addition and Subtraction at Level II was comparatively lower than for the other two sub-tasks. The percentage of national mean scores on Addition and Subtraction at Level II, Missing Numbers and Word Problems were 39.9 (±0.1), 42.1(±0.1) and 39.9 (±0.1), respectively. This implies that in Arithmetic, the pupils answered correctly at the most 4 out of 10 questions on Addition and Subtraction, 2 out of 5 on Missing Numbers and 2 out 5 on Word Problem solving.

Further analysis indicates that boys scored above the national mean score in all the sub-tasks and outperformed girls, who performed below the national mean score. The parametric tests conducted on these data confirmed that the mean difference in scores between boys and girls on Addition and Subtraction at Level II and Missing Number sub-tasks were statistically significant (p=0.00, alpha 0.05). However, the differences in Word Problem-solving were not statistically significant (p=.603). In general, the difference in the means on Arithmetic (addition, subtraction, missing words and word problem) between boys and girls was statistically significant (p=.00, α=.05), hence indicating that boys performed better than girls in Arithmetic as Table 20 illustrates:

Table 20: National Mean Scores on Arithmetic Sub-tasks

Sub-tasks	2019 National 3Rs Study		
	Overall National Mean Scores	Mean Scores by Gender	
		Boys	Girls
Addition and Subtraction (Level II)	39.9 (±0.1)	40.6 (±0.1)	39.3 (±0.1)
Missing Number	42.1 (±0.1)	42.8 (±0.1)	41.3 (±0.1)
Word Problem	39.9 (±0.1)	39.9 (±0.1)	39.8 (±0.1)

Margin of error is in parentheses ()

3.4.2 Distribution of Scores in Arithmetic Sub-tasks

The pupils' performance on Arithmetic skills was classified in four levels: Poor Performers, Average Performers, Good Performers and Very Good Performers. Pupils performed poorly if they responded correctly to less than five questions. Their performance was categorised as average if the pupils were able to respond correctly to 5 or 6 questions. Their performance was good if they were able to respond correctly to 7 or 8 questions, and their performance was very good if they responded correctly to 9 or all 10 questions. Figure 15 shows the distribution of pupils' scores on the four categories:

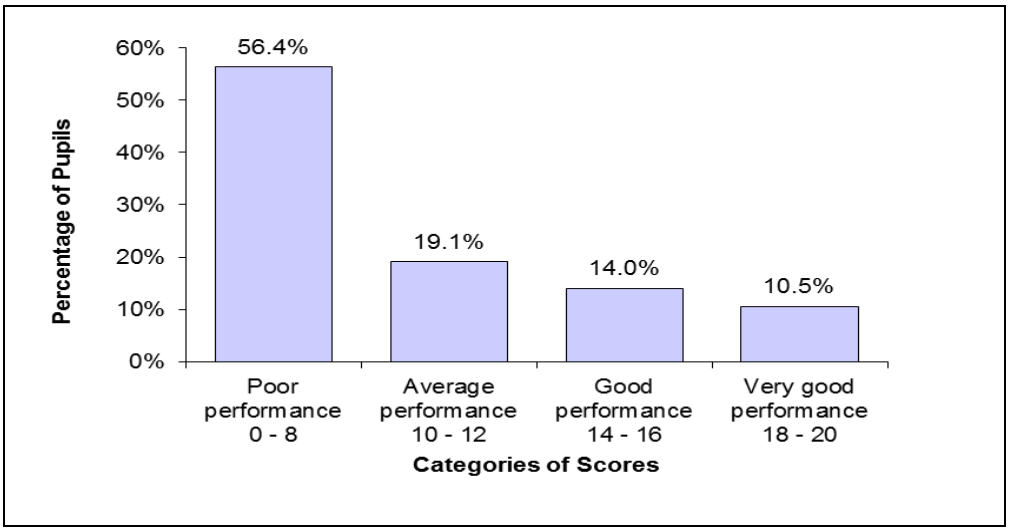


Figure 15: *Distribution of scores on Arithmetic sub-tasks*

Figure 15 shows that more pupils (56.4%) responded correctly to less than five Arithmetic questions than the average performers (19.1%), good performers (14.0%) and very good performers (10.5%). Generally, the performance of pupils on Arithmetic can be described as poor since only 24.5 percent had good and very good performance, implying good Arithmetic skills abilities.

3.4.3 Tanzania National Benchmarks for Arithmetic

The national benchmark for arithmetic is set at 80 percent of the correct answers for Addition and Subtraction Level II and 60 percent of the correct answers for Missing Numbers. However, for EPfR purposes, the target for 2019 was reviewed to 22 percent of the pupils

attaining the national target on Arithmetic. Table 21 presents the proportion of pupils scoring at the Tanzania benchmark:

Table 21: Proportion of Pupils at the Tanzania Benchmark for Arithmetic

Arithmetic Subtask	Benchmark	2013 National 3Rs Study	2016 Tanzania National EGMA	2019 3Rs Study	2020 Target
Addition and Subtraction (Level II)	80% on the Addition and Subtraction (Level II) sub-tasks	8.2% (±2.5)	7.9% (±0.9)	17.1% (±0.1)	22%
Missing Number	60% on Missing Number Subtask[16]	8.3% (±3.9)	10.6% (±10.6)	39.1% (±0.1)	-

Margin of error is in parentheses ()

For Arithmetic, Table 21 shows that the pupils who attained the 80 percent benchmark on Addition and Subtraction Level II and 60 percent for Missing Numbers were 17.1 percent and 39.1 percent, respectively. The annual targets for both sub-tasks were 8 percent (2013), 16 (2016) and 35 percent (2019). In 2019, there was an improvement for Addition and Subtraction Level II compared to the previous years. It was noted that, in 2019, the pupils who attained the 80 percent for the Addition and Subtraction benchmark increased from 7.9 percent (2016) to 17.1 percent (2019). Despite the increase in performance, it was still below the benchmark of 22 percent by 4.9 percent.

Moreover, results show that 17.5 percent of the boys met the benchmark on Addition and Subtraction Level II as compared to 16.7 percent of the girls. With regard to the Missing Numbers, the boys (33.1%) performed slightly better than the girls (32.3%). Table 22 shows the proportion of pupils that scored at the national benchmark by gender:

[16]Not included in the EPfR disbursement calculation for 2019

Table 22: National Summary of Pupils' Scores on Arithmetic Sub-task by Gender

Arithmetic Subtask	Benchmark	Boys	Girls
Addition and Subtraction (Level II)	80% on the Addition and Subtraction (Level II) subtasks	17.5% (±0.0)	16.7% (±0.0)
Missing Number	60% on Missing Number Subtask	33.1% (±0.1)	32.3% (±0.1)

Margin of error is in parentheses ()

Generally, the results indicate that boys performed better than the girls. The difference is statistically significant ($p=0.00$, $\alpha = 0.05$).

3.4.4 Proportion of Pupils who Scored Zero in Arithmetic

Table 23 presents the percentages of zero scores on the two arithmetic sub-tasks. Results revealed that 22.8 percent of the pupils scored zero on the Addition and Subtraction sub-tasks and 24.1 percent scored zero on the Missing Number sub-task. When these sub-tasks were analysed across the years, the proportion of pupils who scored zero on the Addition and Subtraction (Level II) sub-tasks dropped by 9.3 percent. However, the performance on the Missing Numbers sub-task had been fluctuating, with 2019 posting the least impressive performance.

Table 23: Proportion of Pupils who scored zero in the Arithmetic Overall National Mean Scores

Subtasks	2013 Study	2016 Study	2019 Study	5-Year Target
Zero scores on the Addition and Subtraction Subtasks	43.4% (±6.5)	32.1% (±1.9)	22.8% (±0.1)	20%
Zero scores on Missing Number Subtask	10.9% (±3.9)	7.2% (±0.9)	24.1% (±0.1)	5%

Margin of error is in parentheses ()

3.4.5 Categories of Performers in Arithmetic Sub-tasks

Like in the previous studies, to get the overall impression of the performance in Arithmetic and to compare the performance between the years, a composite score was created using the Tanzania benchmark. The following categories were adopted:

(a) Non-performers – The score on the Missing Number Sub-task equals zero and/or the score on the Addition and Subtraction (Level II) sub-tasks equals zero.

(b) Emergent Performers – The scores on both the Missing Number sub-task and the Addition and Subtraction (Level II) sub-tasks are above zero.

(c) Approaching Benchmark Performers –The score on either the Missing Number Sub-task or the Addition and Subtraction (Level II) subtask is at or above the Tanzania benchmark.

(d) Benchmark Performers – Both of the scores on the Missing Number sub-task or the Addition and Subtraction (Level II) subtasks are at or above the Tanzania benchmark.

The analysis of data based on these categories shows that, benchmark performers improved from 3.3 to 11.7 percent. Further analysis shows that more emergent performers improved to the approaching benchmark category. According to the rating, there was more improvement in the top two categories (approaching benchmark and in benchmark performers) in the 2019 study than in the 2016 study. Figure 16 shows the distribution of pupils by performance categories:

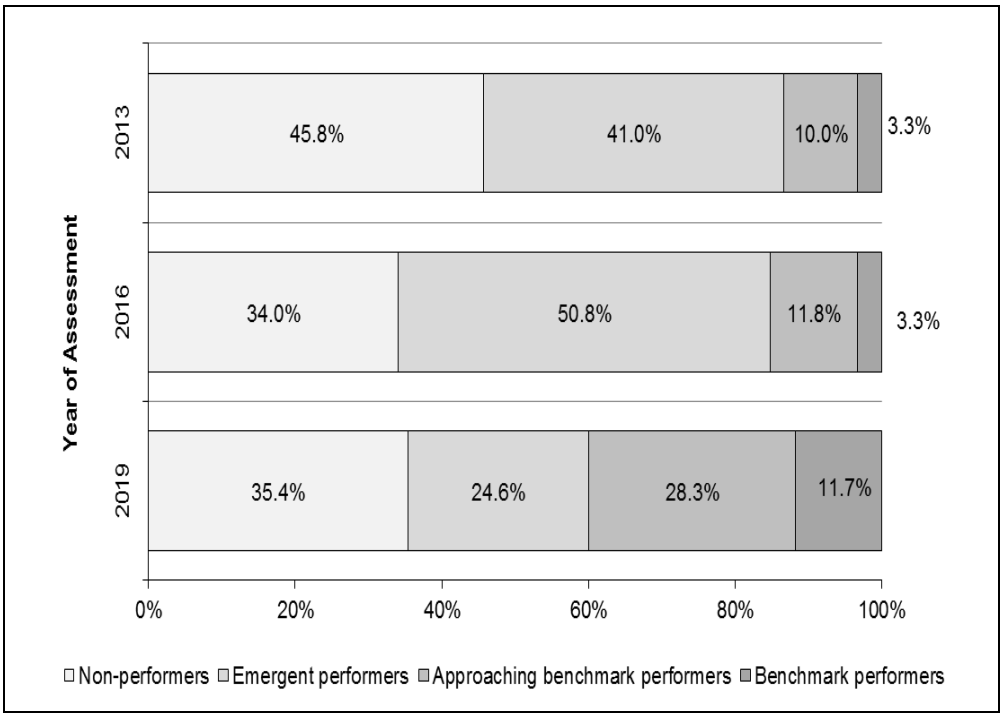


Figure 16: *Categories of performers in Arithmetic sub-tasks*

3.4.6 Distribution of Arithmetic Scores on Arithmetic Sub-tasks by Gender

The data indicates that more than 50 percent of both genders did not perform well in all Arithmetic sub-tasks. Likewise, more girls than boys[17] attained lower scores in all Arithmetic sub-tasks. Moreover, only boys performed above average on Addition and Subtraction as well as Missing Numbers sub-tasks. Figures 17, 18 and 19 illustrate the distribution of scores between boys and girls on the Addition and Subtraction, Word Problems and Missing Numbers sub-tasks, respectively:

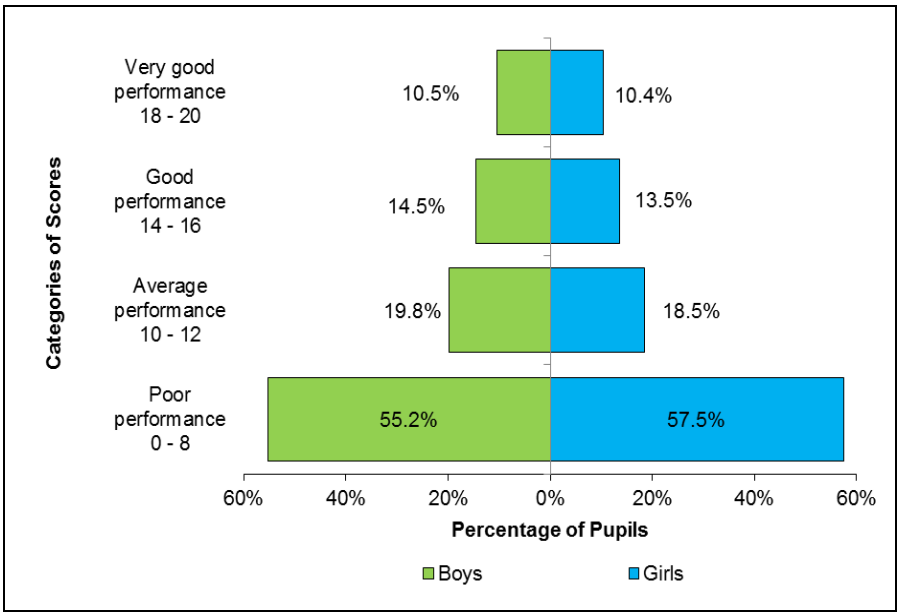


Figure 17: *Distribution of Scores on Addition and Subtraction by Gender*

[17] There is a significant relationship between Arithmetic scores and gender performance, *$x^2(3,1771513) = 1134.6$ p=.00. This means that boys were more likely than girls to do better in Arithmetic sub-tasks.*

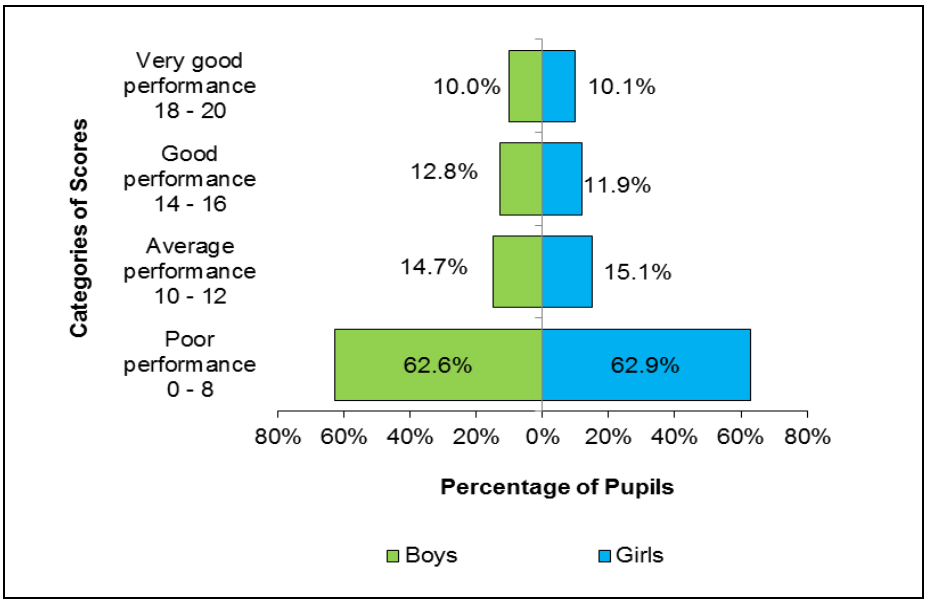


Figure 18: *Distribution of Scores on Word Problems by Gender*

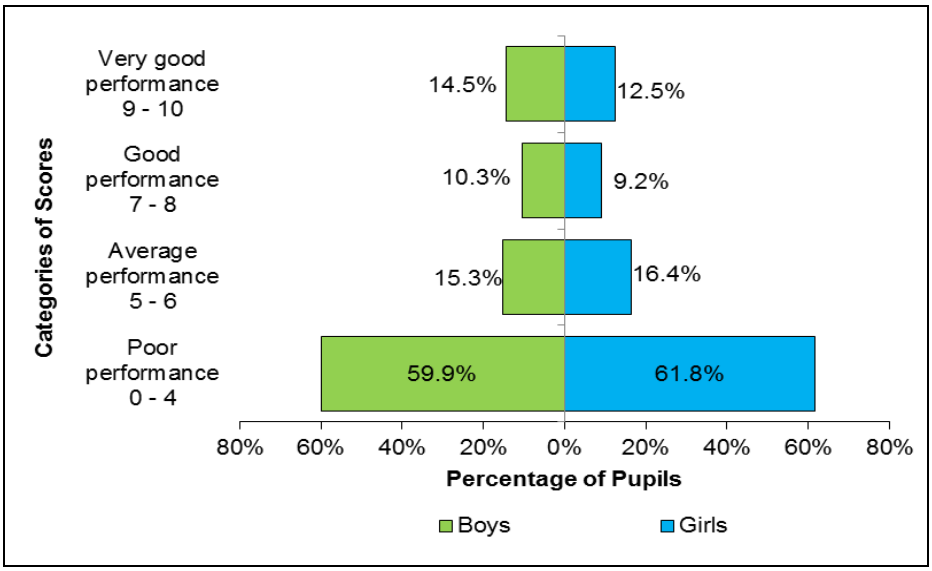


Figure 19: *Distribution of Scores on the Missing Number Sub-task by Gender*

3.4.7 Arithmetic Scores by Region

Data analysis also established the performance of the pupils in each region. Results show that 12 regions performed above the national mean score on Addition and Subtraction (Level II). Dodoma had the highest proportion of pupils performing at the national mean score

(27.2%) and Rukwa had the lowest proportion of pupils performing at the national mean score (5.1%).

The ranking of performance by regions on all three Arithmetic sub-tasks shows that Morogoro ranked top and Rukwa ranked bottom. The ranks for Addition and Subtraction Level II, Missing Numbers and Word Problem-solving are presented in appendices 3, 4 and 5, respectively. Furthermore, the percentages of regional mean scores disaggregated by gender for Missing Numbers, Addition and Subtraction and Word Problem-solving are presented in figures 21, 22 and 23, respectively.

The trends of regional performance show that, on Addition and Subtraction Level II, Coast (Pwani) region registered the highest improvement by 15.6 percent compared to Rukwa which had the lowest improvement, a paltry 0.9 percent. Similarly, on the Missing Numbers subtask, all the regions showed improvements of between 7.8 and 52.5 percent, with Ruvuma having the highest improvement and Kigoma the lowest improvement. Appendix 8 shows how the regions performed relative to the 2016 study. In addition, the proportion of pupils scoring at the national benchmark for each region show that, the proportion of pupils scoring at the national benchmark in the 12 regions was above the national mean (17.1%) whereas the percentage of pupils scoring at the national mean in the remaining 14 regions was below the national mean as Figure 20:

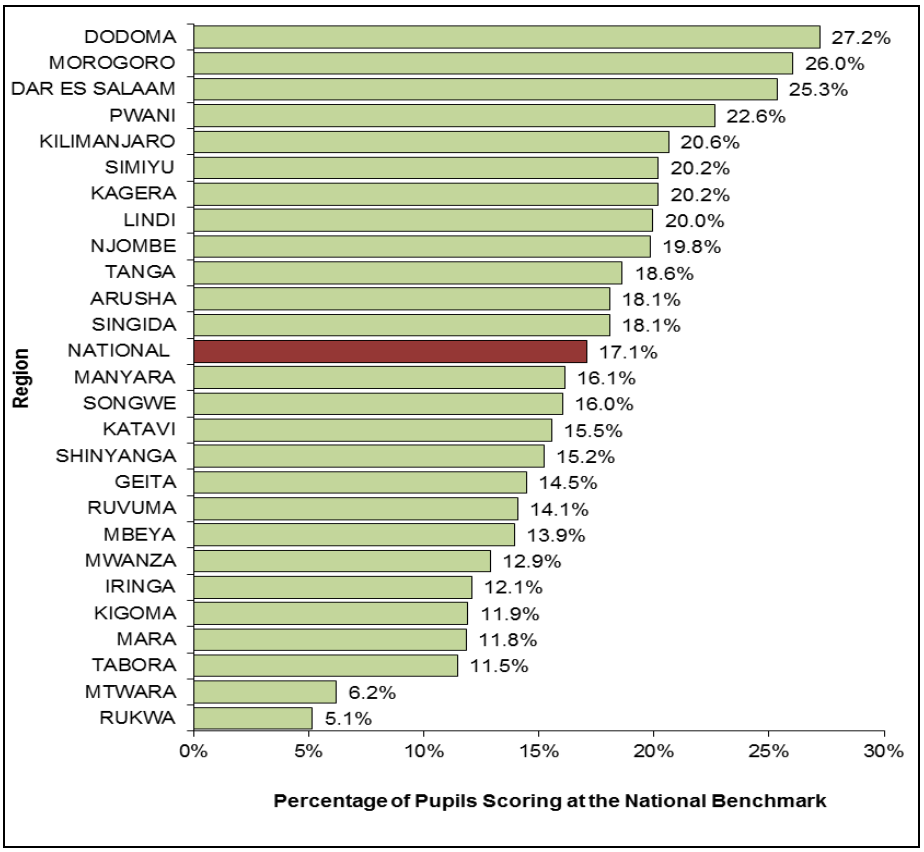


Figure 20: *Proportion of Pupils Scoring at the National Benchmark*

Regional Performance by Gender on Arithmetic Sub-tasks

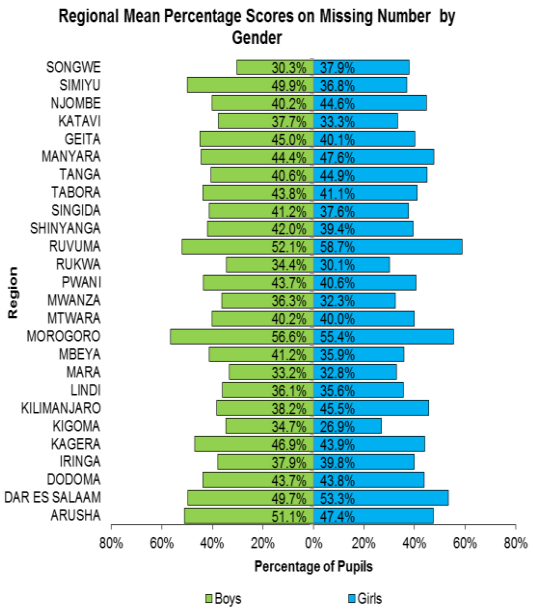


Figure 21: *Pupils' Performance on the Missing Numbers Sub-task by Region and Gender*

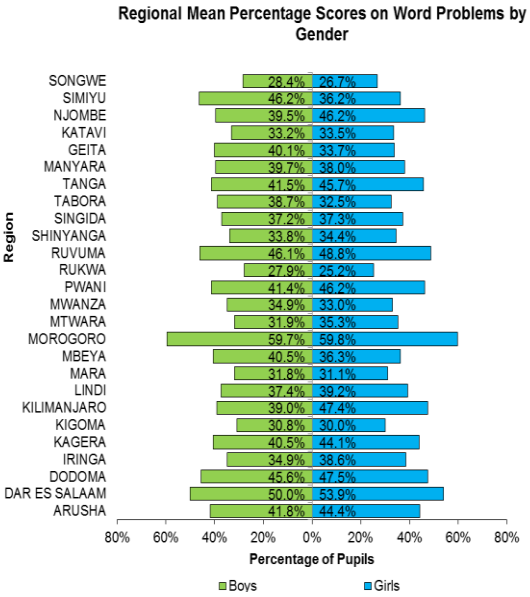


Figure 23: *Pupils' Performance on the Word Problem sub-task by Region and Gender*

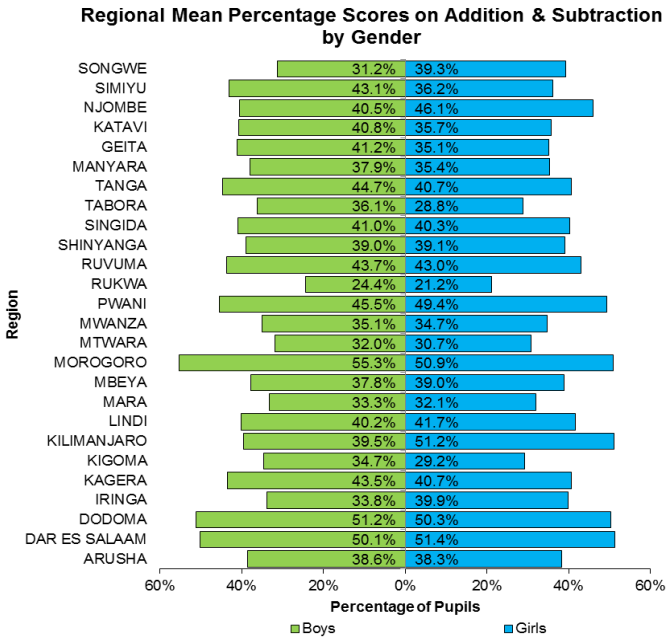


Figure 22: *Pupils' Performance on Addition and Subtraction Level II Sub-task by Region and Gender*

3.4.8 Analysis of Item Difficulty in Addition and Subtraction Sub-tasks

The analysis of item difficulty was done to establish how the pupils performed on each item. The items were developed in such a way that the level of complexity increased gradually. Generally, the analysis shows that the percentage of pupils who responded correctly to the items decreased with the increasing level of complexity. With regard to addition items, the pupils found more difficulties in adding two double-digit numbers with carrying (see Items 4 and 5) than in adding one to two -digit numbers with carrying (see Item 2) in Figure 24. Similarly, the pupils found it more difficult adding a one-digit number to a two-digit number with carrying than in adding a one-digit number to a two-digit number without carrying (see Item 1) in Figure 24.

As for subtraction, a similar trend was noticed. The pupils found it more difficult to subtract when borrowing (see Items 9 and 10) than without borrowing (see Item 6). Likewise, the pupils found subtraction more difficult than addition as manifested by lower percentages of correct responses to subtraction items with the same level of difficulty (see Figure 24).

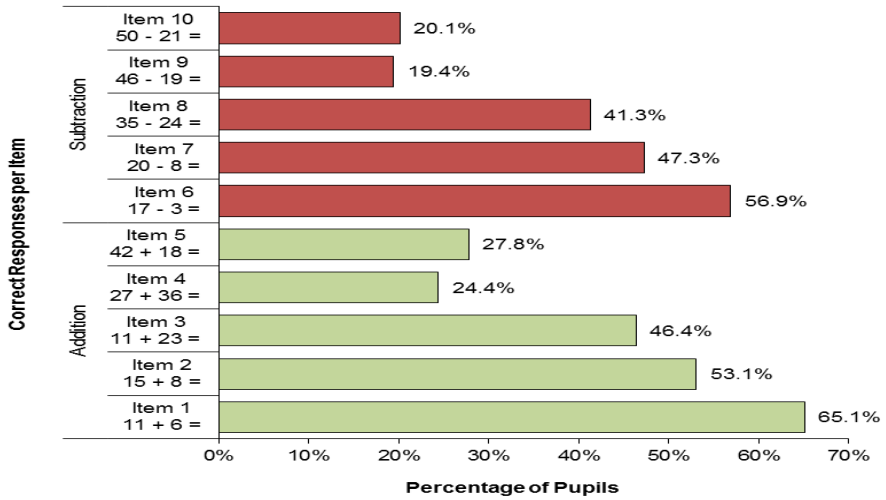


Figure 24: *Percentage of Correct Pupil Responses to Addition and Subtraction (Level II) Sub-task*

3.5 Analysis of Item Difficulty in Missing Numbers and Word Problems Sub-`tasks

To assess the Missing Number and Word Problem, five items were used for each type. Missing numbers were assessed using items 1 to 5 whereas Word Problems were assessed using items 6 to 10. Out of five questions in the Missing Numbers sub-task, 4 items were increasing by 1, 2, 10, 5 and one item was decreasing by 1. Generally, the analysis shows decreasing percentage of correct responses with an increasing level of complexity. Likewise, the items which increased by 1 and 10 (see Figure 25, Item 1 and Item 4) were performed better (70.8% and 53.4% respectively) than the items that increased by 2 and 5 (see Figure 25, Item 3 and Item 5). The item that increased by 2 was performed poorly (21.9%) compared to other items. The items which decreased by 1 (see Figure 25, Item 2) was also performed relatively lower than the items which increased by 1 and 5.

With regard to the word problem sub-task, the pupils performed better (64.1%) on the addition item (see Figure 26, item 6) which required the addition of one by one-digit numbers without carrying. Similarly, such pupils performed better (56.2%) on items that required subtraction of one by one-digit numbers without borrowing (see Figure 26, item 7). It was noted that pupils performed poorly on items that required subtraction of two double-digit numbers with borrowing and addition of two double-digit numbers with carrying (see Figure 26, item 8 and item 9). Figures 25 and 26 present the percentage of correct responses to Missing Numbers and Word Problem-solving sub-tasks.

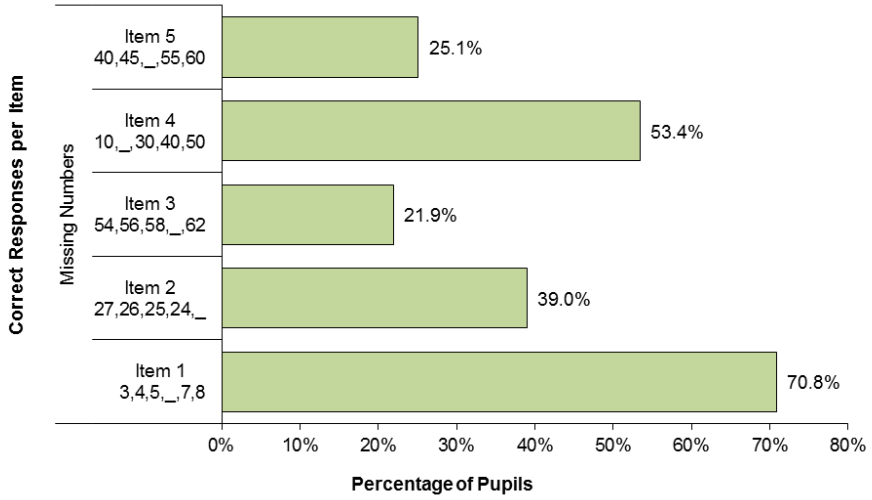


Figure 25: *Percentage of Pupils' Correct Response to the Missing Numbers Sub-task*

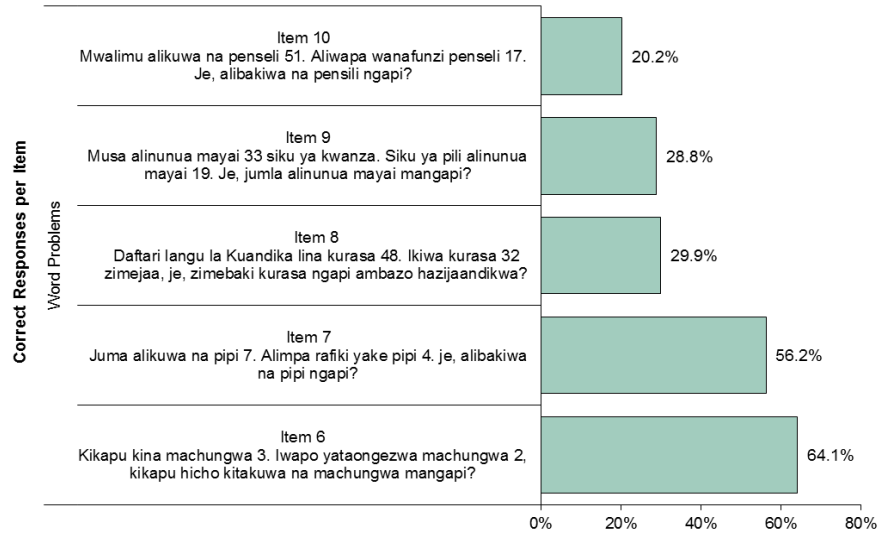


Figure 26: *Percentage of Correct Responses to the Word Problems Sub-task*

3.6 Writing Skills Assessment Results

To assess the writing skills, three sub-tasks were used. The first sub-task required the pupils to write 10 names of objects presented in pictures. The pupils were required to look at the pictures and write down the name of the object presented. Each correct name (word) was given 2 marks, hence a total of 20 marks for this sub-task. For the second sub-task, the pupils were presented with five sentences

consisting of 20 words, 10 of them were written in small letters and the remaining 10 in capital letters. The pupils were required to identify the words written in small letters by underlining them. Each correctly underlined word was given 1 mark, hence 10 marks for this section. The third sub-task required the pupils to copy an unpunctuated passage consisting of 16 words and punctuate it using full-stops, commas, exclamation marks and question marks. Each word that was copied was given one mark and each correct punctuation was given one mark, hence 20 marks for this subtask.

This section presents the results for Writing skills assessment. It starts at the national level before disaggregates the results by category of performer, gender, region and rural/urban locality.

3.6.1 National Mean Scores on Writing

When national mean scores on each sub-task are considered, the pupils performed better in writing words than in identifying the words written with capital and small letters and in re-writing a passage using appropriate punctuation marks. The national mean scores in writing words, identifying words with capital and small letters and re-writing a passage as well as using appropriate punctuation marks were 56.3 percent, 50.0 percent and 47.7 percent, respectively. This shows that the pupils were able to write at the most 6 words correctly out of the 10 words presented in the pictures. Other pupils performed averagely (47.7%) in copying and re-writing the passage using appropriate punctuation marks, hence revealing their partial ability to use punctuation marks. Table 24 presents the overall national mean scores on each sub-task and the mean scores disaggregated by gender (significant difference at $p=0.00$, $\alpha = 0.05$). A further analysis based on gender shows that the girls performed better than the boys in all the three writing sub-tasks.

Table 24: National Mean Scores on Writing Sub-task

Sub-tasks	2019 National 3Rs Study		
	Overall National Mean Scores	Mean Scores by Gender	
		Boys	Girls
Writing Words	56.3% (±0.1)	54.1% (±0.1)	58.6% (±0.1)
Identifying Small Letters	50.0% (±0.1)	48.9% (±0.1)	51.0% (±0.1)
Re-write a passage using appropriate punctuations	47.7% (±0.0)	46.4% (±0.0)	49.1% (±0.0)

Margin of errors in parentheses ()

3.6.2 Categories of Performers in the Writing Sub-task

The pupils' performance on the Writing sub-task was categorised into four groups of Non-performers, Emergent Performers, Average Performers and Proficient Performers thus;

(a) Non-performers – Pupils who could identify correctly at the most 2 words written in capital or small letters or could write at the most 2 words and could copy at the most only 4 words with 1 correct punctuation mark.

(b) Emergent Performers – Pupils who could identify correctly at the most 5 words written in capital or small letters or write at the most 5 words and could copy at the most 8 words with 2 correct punctuation marks.

(c) Average Performers – Pupils who could identify correctly at the most 8 words written in capital or small letters or write at most 8 words and could copy at the most 12 words with 3 correct punctuation marks.

(d) Very Good Performers – Pupils who could identify correctly at the most 10 words written in capital or small letters or write at the most 10 words and could copy at the most 16 words with 4 correct punctuation marks.

The analysis of data based on these categories shows that the pupils, who had the very good performance, accounted for 29.9 percent of the sum. The performance of other categories were; Non-performers (25.2%), average performers (20.7%) and good performers (24.3%).

Figure 27 illustrates the distribution of the pupils by performance category:

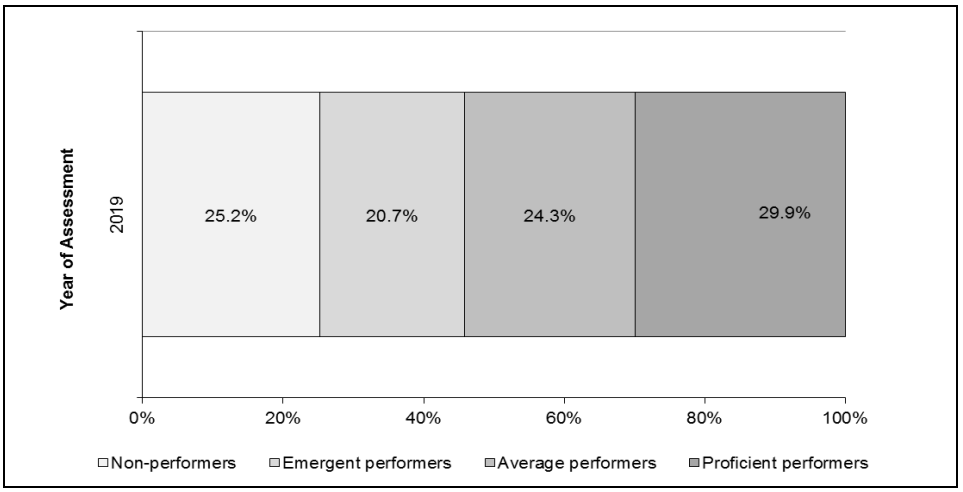


Figure 27: *Categories of Performers in the Writing Sub-task*

Overall, girls outperformed boys in achieving higher levels of performance (Average and Proficient performers). They were also less present at the lower levels of the performance, particularly in the non-performer category. At p = (<0.05), the results confirm that the girls developed better writing skills than the boys. Figure 28 illustrates the Writing competency of pupils:

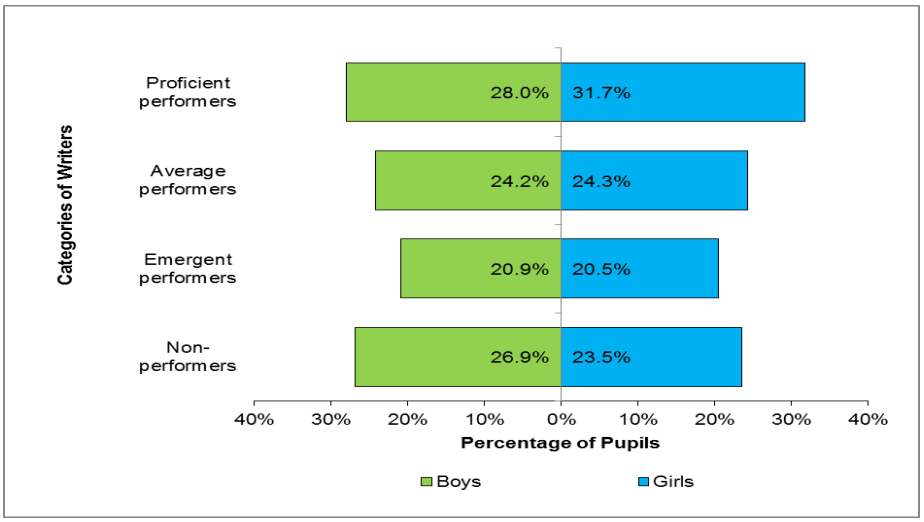


Figure 28: *Distribution of Scores on the Writing Sub-task by Gender*

3.6.3 Proportion of Pupils who scored Zero in Writing Skills

In terms of those who scored zero, 7.7 percent (±0.1) of the pupils scored zero on the Writing sub-task nationally. Disaggregated by gender, more boys (8.7 percent; ±0.1) than girls (6.8 percent; ±0.0) scored zero on the Writing Assessment sub-task as indicated in Table 25:

Table 25: Percentage of Zero Scores on the Writing Subtask

Description	National Average	Boys	Girls
Percentage of zero scores at the Writing Subtask	7.7% (±0.1)	8.7% (±0.1)	6.8% (±(0.0)

Margin of errors in parentheses ()

3.6.4 Distribution of Scores on Writing Sub-tasks

The statistics show that more pupils (33.9%) were good performers. They wrote 6 to 8 words correctly (correct names representing the pictures) out of 10 words compared to poor performers (22.5%), average performers (19.4%) and very good performers (24.2%) as Figure 29 illustrates. Overall, more than half of the pupils (58.1%) had good writing ability.

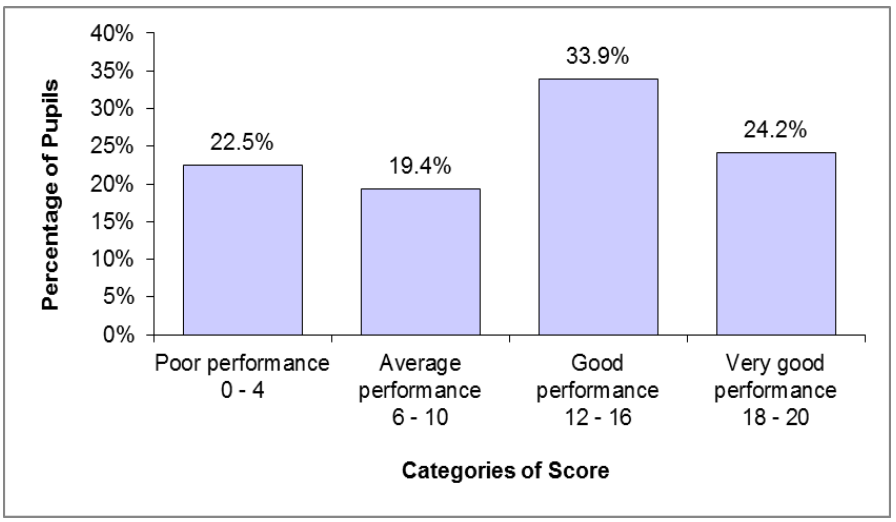


Figure 29: *Distribution of Pupils' Score on Word Writing Sub-task*

For the task of identifying capital and small letters, few pupils attained average and good performances. The majority had inadequate performance (42.2%). These were followed by those who attained very good performance (37.9%). Accordingly, the performance was not normally distributed as Figure 30 illustrates:

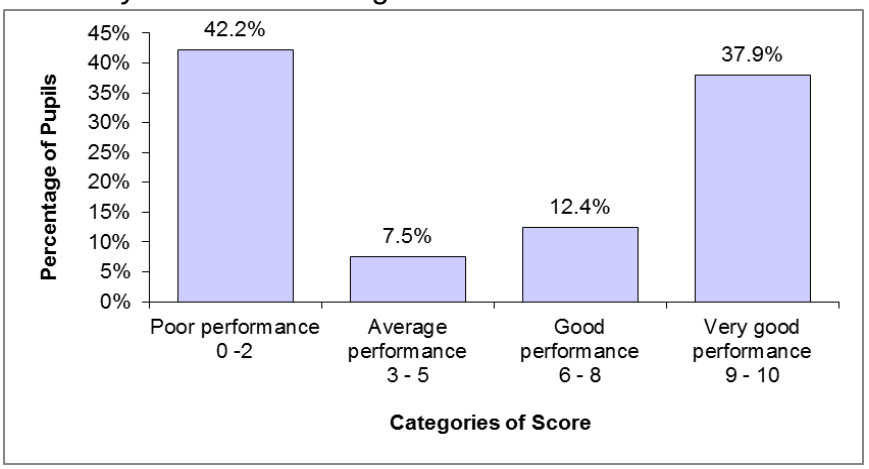


Figure 30: *Distribution of Pupils' Scores on the Sub-task of Identifying Capital and Small Letters*

As Figure 30 demonstrates, only 50.3 percent of the pupils had the ability to identify between 6 and 10 words written in small letters.

For the sub-task that required the pupils to copy a passage and use appropriate punctuation marks, statistics show that very few pupils had average and very good performance. Notably, more pupils could copy at the most 4 words and 1 punctuation mark (41.4%). Others could copy at the most 12 words and use 3 punctuation marks (43.9%). Figure 31 shows the distribution of scores for this sub-task:

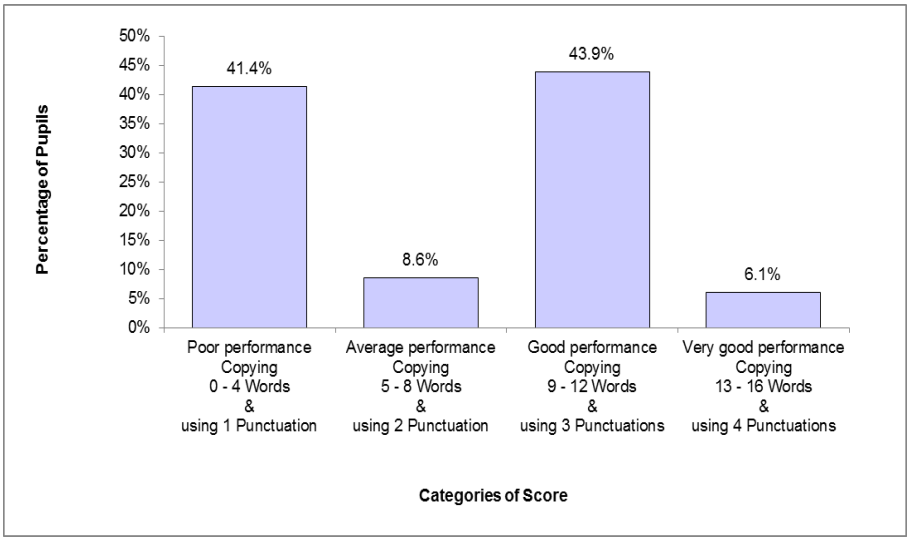
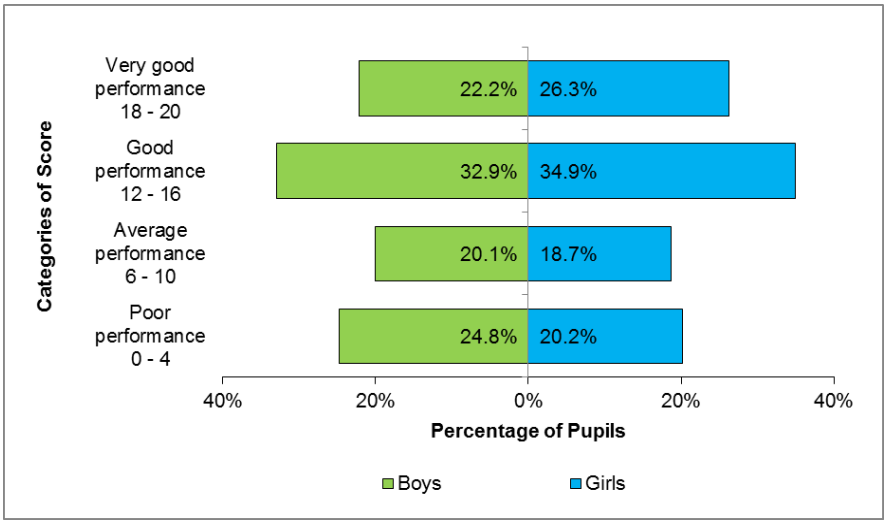


Figure 31: *Distribution of Scores on the Sub-task of Copying a Passage and Using Appropriate Punctuation Marks*

3.6.5 Distribution of Scores in Writing Sub-tasks by Gender

The data reveals that girls performed better than boys in word writing[18]. More than 55.1 percent of the boys and 61.2 percent of the girls attained good performance and very good performance on the word writing sub-task. Conversely, more boys (24.8%) attained lower scores in the words writing sub-task than girls (20.2%) as Figure 32 shows:



[18] A significant relationship was revealed between the categories of performances across gender in word writing, X^2 *(3, N=1771513) = 8239.7, p =.00*, implying that more girls than boys are likely to have good ability to write words.

Figure 32: *Performance on the Word Writing Sub-task by Gender*

The data also show that girls performed better than boys on the task of identifying small letters[19]. The statistics show that 49.1 percent of the boys and 51.4 percent of the girls had good performance and very good performance on identifying small letters. Based on this trend, more boys (43.1%) attained lower scores in the word writing sub-task than girls (41.3%) as shown in Figure 33:

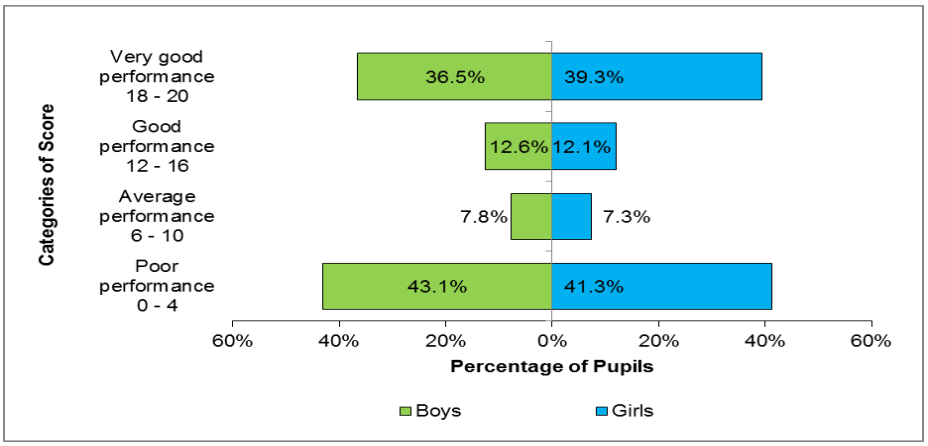


Figure 33: *Percentage of Pupils' Performance on the Task of Identifying Small Letters by Gender*

For the sub-task that required the pupils to rewrite a passage and use appropriate punctuation marks, both boys and girls had good and very good performance. It was noted that more girls managed to copy at the most 4 words and use 1 punctuation mark (45.2%). On the contrary, boys (42.9%) did not perform as well as the girls (39.3%) on this sub-task[20] as illustrated in Figure 34:

[19] A Chi-squared test indicated a significant relationship between gender and performance in identifying small letters, X^2 *(3, N=1771513) = 1547.7, p =.00.* Implying that, girls were more likely than boys to differentiate small letters from capital letters.

[20] A significant relationship was found between gender and performance on re-writing a passage and using appropriate punctuation marks, X^2 *(3, N=1771513) = 2562.9, p =.00.* Implicitly, girls were more likely than boys to copy the passage and use appropriate punctuation marks.

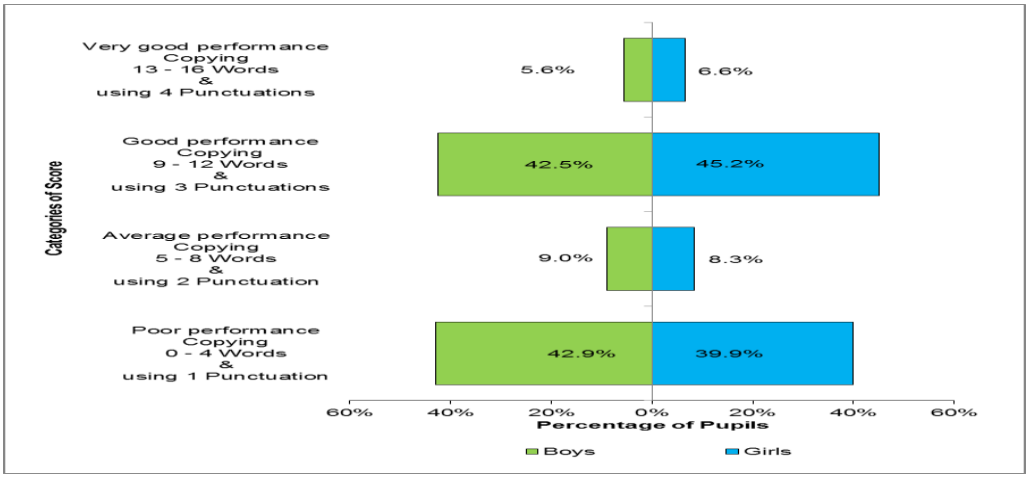


Figure 34: *Distribution of Score on the Sub-task that Required Pupils to Copy a Passage and Use Appropriate Punctuation Marks*

3.6.6 Performance of Pupils on the Writing Assessment by Region

The analysis show that 12 regions performed above the national mean percentage scores (51.7%) on writing skills assessment. Among them, Dar es Salaam had the highest proportion of pupils performing at the national mean score (72.0%) and Kigoma (35.2%) had the lowest proportion of pupils performing at the national mean percentage score, as illustrated in Figure 35 (see Appendix 6).

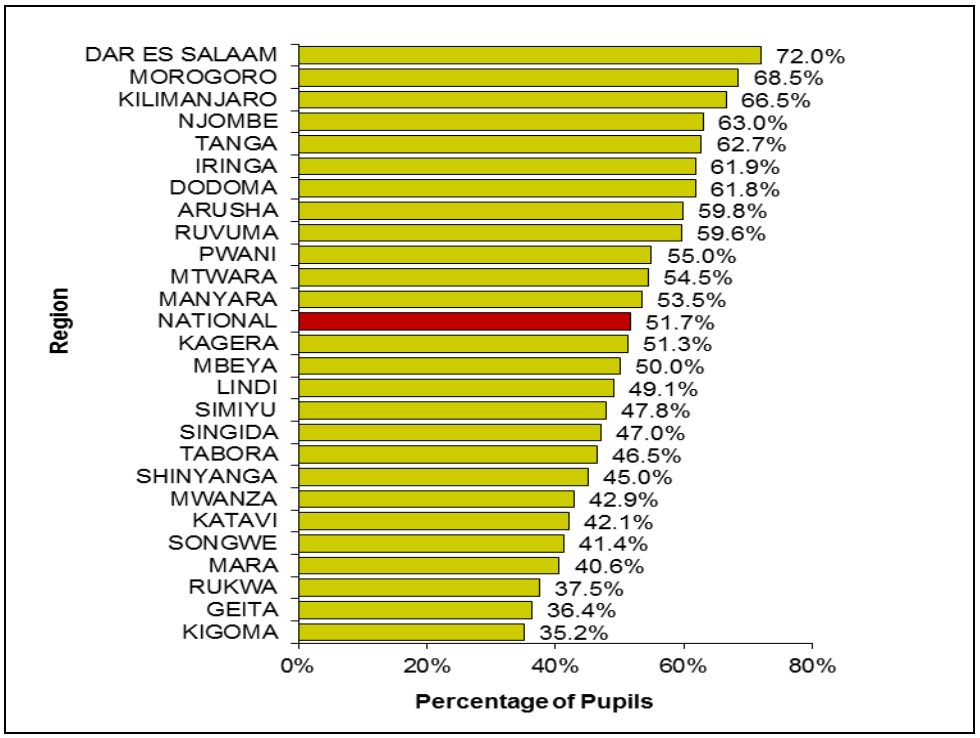


Figure 35: Mean Scores on the Writing Sub-task by Region

The gender-based analysis of data reveals that, in all the regions, girls outperformed boys in writing skills with the exception of Simiyu, Geita and Tabora whereby the boys slightly outperformed the girls. In Katavi Region, the girls had significantly outperformed the boys as presented in Figure 36 (see Appendix 6).

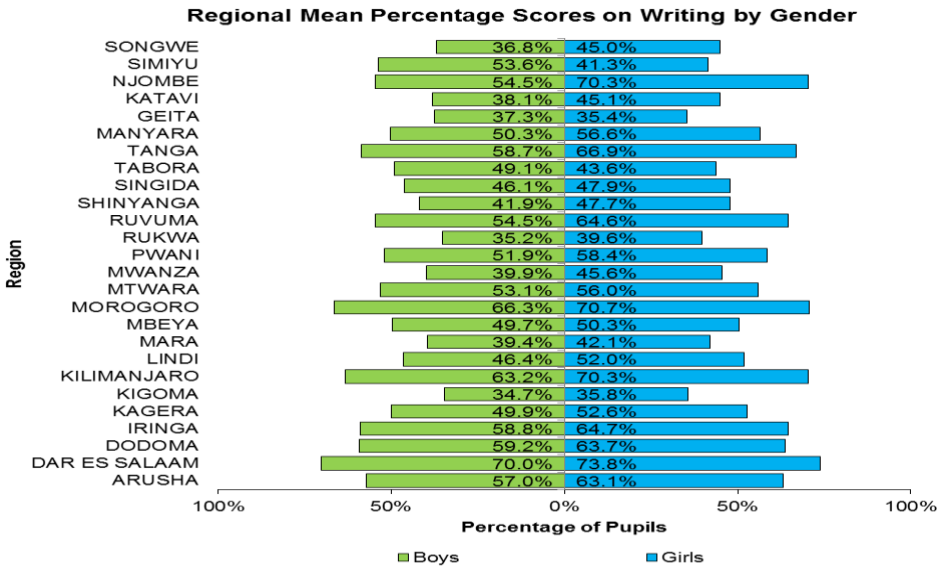


Figure 36: Distribution of Scores on the Writing Sub-tasks by Gender

3.6.7 Analysis of Item Difficulty in the Writing Skills Sub-tasks

The analysis of item difficulty was done by establishing how the pupils performed on each writing sub-task. The analysis of the writing performance established the percentages of the correct writing for each word. The study findings show that, in writing words, the pupils performed better in writing 4-out-of-10 words (see Figure 37). The words include *meza* (74.0%), *saa* (75.9%) *bata* (67.9%) and *Kikombe* (64.5%). In other words, it was easier for the pupils to write words formed by a consonant followed by a vowel than it was to write words with consonant followed by another consonant and a vowel such as *Ng'ombe* (37.1%), *mpira* (42.0), *chura* (46.9%) and *Mguu* (49.6%).

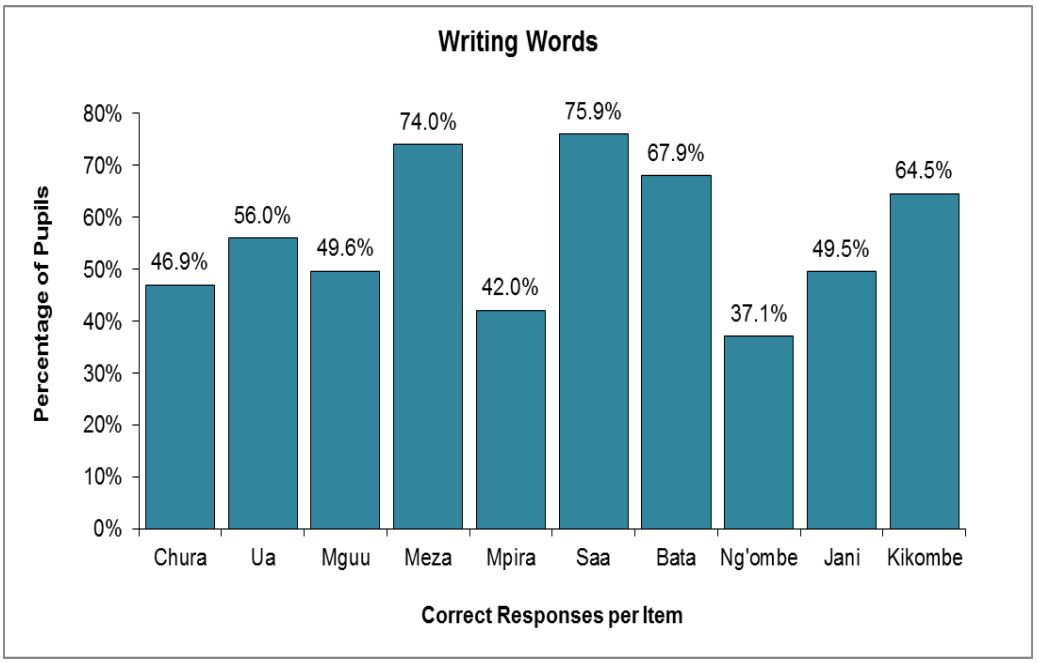


Figure 37: *Percentages of Pupils who Wrote Words Correctly on the Words Writing Sub-task*

For the task of underlining the words written in small letters, there was no significant difference among the 10 words. The pupils' performance ranged from 46.5 to 52.0 percent. This implies that the pupils' ability to copy the words did not vary significantly. Hence, it led to a small perfomance difference among them (see Figure 38).

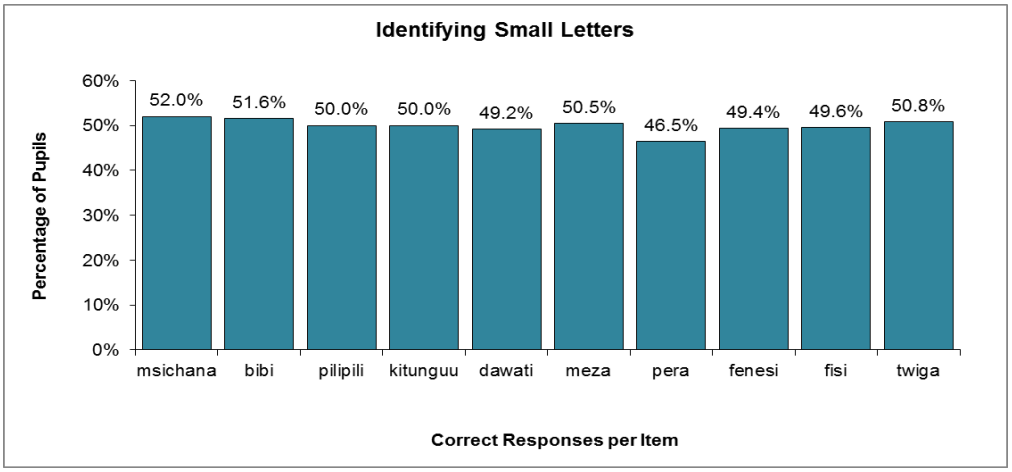


Figure 38: *Percentage of Correct Responses in Underlining Small Lettered Words.*

It was further noted that, though pupils had good skill in copying the words they were given to punctuate, most of them could not use punctuation marks appropriately. This is exemplified by the lower percentages of correct usage of the question mark (17.9%), the exclamation mark (24.7%), the comma (12.8%) and the full-stop (18.5%), as illustrated in Figure 39:

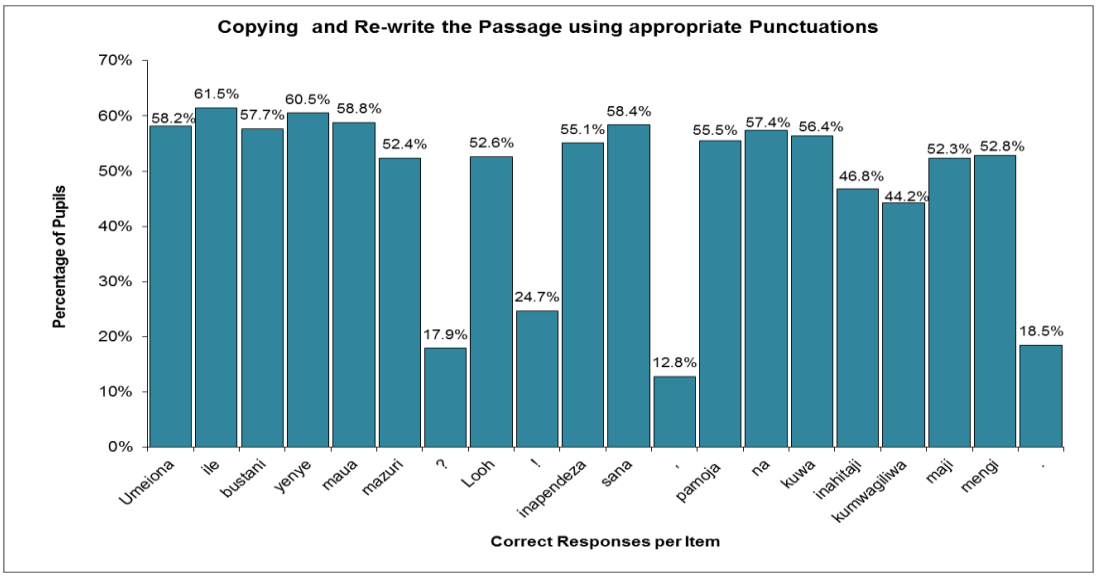


Figure 39: *Pupils' Percentage of Correctly Copying and Punctuating the Passage.*

3.7 Overall Regional Rank on the 2019 3Rs Study

The overall mean scores for all the skills were computed and the ranks for each skill region-wise were determined to find out which region was performing better. Appendix 7 depicts the overall ranking for all the skills which were assessed in 2019 3Rs study and revealed that, the top five best performing regions were Morogoro, Dar es Salaam, Dodoma, Tanga and Ruvuma whereas the least five performing region were Kigoma, Rukwa, Katavi, Mara and Mwanza.

3.8 Availability of Teaching and Learning Resources

The availability of teaching and learning resources such as textbooks, supplementary books and other supportive resources in a school was generally found to influence classroom instruction and academic performance. Data relating to teaching and learning resources for the 3Rs were collected from head teachers using questionnaires (see Appendix 9) to assess their views on the availability of teaching and learning resources. The state of the availability of learning resources is presented in Table 26:

Table 26: State of the Availability of Teaching and Learning Resources

S/N	Item	Poor (%)	Average (%)	Good (%)	Very Good (%)	Total No. of respondents	Total% (Average to Very good)
(i)	Availability of textbooks for teaching Arithmetic skills.	2.90	37.75	54.14	5.18	482	97.07
(ii)	Availability of supplementary books for teaching Arithmetic skills.	10.76	46.99	38.92	3.31	483	89.22
(iii)	Presence of resources for teaching and learning Arithmetic skills (such as counting aids) and other resources.	9.46	37.24	47.11	5.96	486	90.31

S/N	Item	Poor (%)	Average (%)	Good (%)	Very Good (%)	Total No. of respondents	Total% (Average to Very good)
(iv)	Presence of materials for teaching Writing skills (such as writing boards and other resources)	19.95	39.10	35.64	5.29	491	80.03
(v)	Availability of textbooks for teaching Reading skills.	3.28	34.49	54.00	8.21	487	96.7
(vi)	Availability of materials aimed at developing pupils' Reading skills such as short story books.	3.90	21.39	49.38	24.89	486	95.66

As Table 26 illustrates, out of 482 participants who responded to questions on the availability of textbooks for teaching Arithmetic skills, 54.14 percent indicated that there was 'good availability' of textbooks whereas 37.75 percent said that there was 'average availability' of textbooks. Only 5.18 percent indicated that there was 'very good availability' of textbooks. In contrast, only 2.90 percent reported having inadequate number of textbooks. The data implies that the supply of textbooks for teaching Arithmetic is good, at 59.32 percent. Generally, the data shows that, the supply of materials and textbooks for Arithmetic, Reading and Writing were 97.07, 80.3 and 96.7 percent, respectively.

With regard to supplementary books for teaching Arithmetic skills, 46.99 percent acknowledged that there was 'average availability' of supplementary books. Moreover, data indicates that 38.92 percent of the respondents agreed that there was 'good availability' of supplementary books whereas only 3.31 percent and 10.76 percent of the participants responded that there was very good and poor availability of supplementary books, respectively. Overall, the data implies that supplementary books for teaching Arithmetic skills were available by 89.22 percent.

As for tools such as counting aids for teaching Arithmetic skills, the data indicate that there was 'good availability' of such tools in schools (at 90.31%). However, the presence of teaching materials such as

writing boards was rated comparatively lower at 80.03 percent than other teaching and learning resources. Data also shows that textbooks for teaching Reading skills were adequately available in the schools (96.7 percent).

The head teachers were also asked about the presence of reading books such as passage books for teaching Reading skills. On average, 95.66 percent of the head teachers reported that there were reading books, such as passage books for teaching Reading skills.

3.9 Teaching and Learning Environment

The head teachers were further asked about the general condition of the teaching and learning environment in their respective schools, which covers the availability of desks, tables and chairs for pupils and teachers, classrooms, clean drinking water and sanitation as well as collegial relationships, particularly co-operation between parents and the school management (see Appendix 9). The head teachers' responses are presented in Table 27:

Table 27: State of Teaching and Learning Environment

S/N	Item	Poor (%)	Average (%)	Good (%)	Very Good (%)	Total No. of respon dents	Total% Average to Very good
(i)	Availability of desks, tables and chairs for pupils and teachers	8.99	40.69	41.10	10.02	489	91.01
(ii)	Adequacy of classrooms relative to number of pupils in Standard I and II	25.55	44.62	25.55	4.25	493	74.42
(iii)	Availability of water sources for the pupils to drink and sanitation	21.88	32.51	37.21	8.38	489	78.10
(iv)	Co-operation between the school management and parents/ guardians of the Standard II pupils.	2.70	20.20	65	12.08	480	97.28

Table 27 shows that, there was good co-operation between parents and the schools as confirmed by 65 percent of the head teachers, although 20.20 percent reported this co-operation to be average. In contrast, 12.08 percent indicated that the co-operation was excellent. Only 2.70 percent were not satisfied with the parents-school

management relationship. Therefore, it can be concluded that 97.28 percent reported that there is co-operation between the schools' management and the parents/guardians of Standard II pupils.

Concerning the availability of clean water services and sanitation in the school setting, 37.21 percent of the 489 respondents acknowledged that the water services for drinking and sanitation were good. Overall, the services are available at 78.10 percent.

As for the adequacy of classrooms relative to the number of pupils in Standards I and II, 44.62 percent of the head teachers reported average adequacy; 25.55 reported good adequacy; and 4.25 percent reported very good adequacy. In other words, the data shows that the majority of the teachers reported average adequacy. This trend was expected because the introduction of Fee-Free Basic Education has increased Gross Enrolment Rate and Net Enrolment Rate. As a result, the classrooms that were once adequate have been affected by the increase in the enrolment rate.

3.10 Factors Affecting the Teaching and Learning of 3Rs

The head teachers were asked to identify the challenges that impede the teaching and learning of the 3Rs skills in their contexts. A list of possible factors was provided for the teachers to select from. The list included challenges such as distance, absenteeism, pupil-teacher ratio, receiving incompetent pupils in 3Rs from other schools and the shortage of teaching and learning materials. Table 28 highlights the results:

Table 28: Factors Affecting Teaching and Learning 3Rs Skills

S/N	Item	Number	%
(i)	Walking distance from home to school	275	56.00
(ii)	Unsatisfactory school attendance	262	53.36
(iii)	Shortage of 3Rs teachers	352	71.69
(iv)	Receiving pupils with poor 3Rs skills transferred from other schools	238	48.47
(v)	Shortage of teaching and learning materials like books	263	53.56

N = 491

As Table 28 suggests, 71.69 percent of the respondents identified the shortage of teachers who are specifically trained in teaching 3Rs as the most significant factor affecting the teaching and learning of 3Rs skills. Walking distance from home to school was identified as the second critical factor affecting the proper teaching and learning of the 3Rs. This problem is most prevalent in Simiyu, Katavi, Singida and Iringa. The analysis shows that, the shortage of teachers and learning materials and unsatisfactory school attendance accounted for 53.36 and 53.36 percent, respectively. Moreover, about 48.47 percent of the pupils transferred from other schools had inadequate 3Rs skills.

Furthermore, head teachers were asked to provide additional issues not covered in the questionnaire. Out of 491 respondents:

(a) Thirty-four percent called on the government and Non-Governmental Organisations to collaborate in training and building the capacity of 3Rs teachers;
(b) Some 30.46 percent insisted on the necessity to employ more teachers with appropriate pedagogical skills to teach 3Rs; and

(c) Only 6.62 percent recommended for having strategies in place to improve the enrolment for pupils with special needs.

CHAPTER FOUR
CONCLUSION AND RECOMMENDATIONS

4.1 Introduction

This chapter presents the conclusions drawn from the analysis and presentation of data. Based on these conclusions, some recommendations are given as presented in the subsequent sections.

4.2 Conclusion

Although more improvement is required, generally, the findings of this study suggest that more progress in both Reading and Arithmetic assessment should be made. Findings on the Reading assessment reveal a steady decrease in the proportion of non-readers. Despite the decrease in the percentage of proficient readers in the 2019 study, it can be argued that the efforts to improve the quality of education in general and reading skills in particular have started to bear positive results. Considering the huge and unprecedented increase in the number of enrolment as a result of the Fee-Free Basic Education Policy (FFBEP), the Government has done a significant job in maintaining these levels. This is demonstrated by the reduction of non-readers and beginning readers as well as the increased number of progressing readers.

Notably, reading fluency has improved over the years. It is particularly gratifying to see improvements in the reading of correct words per minute. On the other hand, although there was improvement in the speed of reading and the proportion of pupils scoring more than 80 percent on comprehension, the overall performance (in mean score) on reading for comprehension needs further improvement. This is a point of concern because the purpose of learning to read is to equip pupils with the ability to comprehend what they read so that they can read to learn. It is also important to underscore the fact that, though the national mean did not reach the 2019 target, when data is analysed regionally, some regions have performed above the set target.

For the Arithmetic assessment, although the set target of attaining 22 percent of the pupils performing at the benchmark level was not achieved, the increase in benchmark performers was much more

significant in the 2019 study than in any of the previous studies. However, item difficult analysis shows that Addition and Subtraction at Level II still posed a challenge, especially for addition that required carrying and the subtraction that entailed borrowing. It can be generally stated that the performance of pupils on the Arithmetic assessment was comparatively lower than for Reading and Writing skills.

As far as Writing skills are concerned, it can generally be established that, pupils are aware of Kiswahili orthography. However, they still need more practice in the use of basic punctuation marks, which appeared to present challenges to many of the pupils.

The questionnaires to evaluate the teaching and learning resources available in schools and their teaching environment in general established that the availability of basic teaching and learning resources was generally good. However, there was an increasing trend of head teachers who reported the average availability of such resources in their respective institutions.

4.3 Recommendations

Based on the findings of this study, the following are the recommendations:

(i) Research has shown that frequent exposure to written text improves the pupils' reading skills. It is, therefore, recommended that, in order to improve the pupils' letter recognition and for them to comprehend what they read, teachers should provide them with a variety of reading materials. Such reading materials should correspond to their class levels to enable them to improve their reading speed and comprehension.

(ii) Findings indicate slow progress in reading for comprehension, which did not meet the set target. Oral fluency, however, met the set target. This implies that, although pupils can decode what they see in the text, they get a challenge when it comes to comprehending what they decode. Thus, it is recommended that, during teaching equal emphasis should be placed on letter/word

recognition, reading fluency and reading for comprehension purposes be emphasised. This will enable pupils to connect what they read and the associated meanings.

(iii) Findings further indicate inadequate performance in Arithmetic skills particularly when it comes to Addition and Subtraction at Level II. The pupils managed to add or subtract simple two by one-digit numbers without carrying or borrowing. However, the pupils' performance became weaker with increased complexity of the addition and subtraction tasks. It is recommended that, during teaching, teachers should develop strategies, which will improve the performance of pupils in these areas that currently appear to be challenging.

(iv) The findings of this study also established a huge variation in performance among regions. Whereas some regions registered performances of above the national mean, others were far below the national mean, consistently, for all the three skills (3Rs). As such, the authorities concerned should look into the challenges, which are making these regions register inadequate performances on consistency basis.

(v) Findings indicate that, pupils are aware of Kiswahili orthography. However, they still need more practice in the use of basic punctuation marks, which appeared to pose challenges to many of the pupils.

(vi) In Tanzania, many basic school inputs aimed at ensuring an effective process of teaching and learning takes place have been introduced. These inputs have been defined in existing policies and include adequate teaching staff. However, due to limited financial resources, the specified staffing policies have not been fully instituted. Though the government has exerted concerted efforts to mitigate the shortage of teachers, much more needs to be done to further improve the situation in areas of concern identified by this study.

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Appendix 1: Regional Performance on the ORF Subtask

Region	Mean Scores on Oral Reading Fluency (%)	Scores by Gender	
		Boys (%)	Girls (%)
ARUSHA	56.2	51.3	61.9
DAR ES SALAAM	67.9	64.0	71.4
DODOMA	59.9	55.4	63.3
IRINGA	65.3	57.4	72.4
KAGERA	48.5	43.2	53.5
KIGOMA	40.5	39.2	42.1
KILIMANJARO	61.3	54.3	69.1
LINDI	45.8	40.6	51.5
MARA	47.3	43.3	52.3
MBEYA	51.1	46.8	55.7
MOROGORO	67.9	63.7	72.0
MTWARA	50.0	46.1	54.4
MWANZA	45.7	40.4	50.4
PWANI	53.9	47.2	61.5
RUKWA	43.3	41.1	45.3
RUVUMA	54.5	51.2	57.6
SHINYANGA	44.8	41.5	47.7
SINGIDA	52.8	49.1	56.7
TABORA	45.6	45.3	45.9
TANGA	61.7	56.9	66.4
MANYARA	54.0	49.9	58.1
GEITA	45.1	42.7	47.3
KATAVI	39.8	37.9	41.3
NJOMBE	59.7	52.6	66.7
SIMIYU	51.3	52.5	50.2
SONGWE	48.6	40.0	55.3

Appendix 2: Regional Performance on the Reading Comprehension Subtask

Region	Mean Scores on Reading Comprehension (%)	Scores by Gender	
		Boys (%)	Girls (%)
ARUSHA	48.7	45.4	52.6
DAR ES SALAAM	71.6	70.8	72.3
DODOMA	60.4	54.2	65.1
IRINGA	60.0	55.9	63.7
KAGERA	43.6	39.7	47.5
KIGOMA	40.7	41.4	39.8
KILIMANJARO	s58.1	53.6	63.1
LINDI	57.2	52.6	62.2
MARA	45.5	42.6	49.2
MBEYA	51.9	50.0	53.9
MOROGORO	70.2	68.7	71.8
MTWARA	55.2	52.8	57.8
MWANZA	43.4	40.4	46.2
PWANI	62.1	57.4	67.5
RUKWA	41.1	40.4	41.7
RUVUMA	57.5	55.3	59.6
SHINYANGA	42.9	40.3	45.3
SINGIDA	53.1	49.7	56.6
TABORA	49.6	51.0	48.3
TANGA	61.8	57.7	65.8
MANYARA	47.7	45.2	50.1
GEITA	44.8	44.1	45.5
KATAVI	41.3	39.7	42.4
NJOMBE	58.7	53.4	63.9
SIMIYU	45.2	45.9	44.5
SONGWE	44.7	39.5	48.8

Appendix 3: Regional Performance on the Addition and Subtraction Subtasks

Region	Mean Scores on Addition & Subtraction (%)	Scores by Gender	
		Boys (%)	Girls (%)
ARUSHA	38.5	38.6	38.3
DAR ES SALAAM	50.8	50.1	51.4
DODOMA	50.7	51.2	50.3
IRINGA	37.0	33.8	39.9
KAGERA	42.1	43.5	40.7
KIGOMA	32.1	34.7	29.2
KILIMANJARO	45.0	39.5	51.2
LINDI	40.9	40.2	41.7
MARA	32.8	33.3	32.1
MBEYA	38.3	37.8	39.0
MOROGORO	53.1	55.3	50.9
MTWARA	31.4	32.0	30.7
MWANZA	34.8	35.1	34.7
PWANI	47.3	45.5	49.4
RUKWA	22.7	24.4	21.2
RUVUMA	43.4	43.7	43.0
SHINYANGA	39.1	39.0	39.1
SINGIDA	40.6	41.0	40.3
TABORA	32.3	36.1	28.8
TANGA	42.7	44.7	40.7
MANYARA	36.6	37.9	35.4
GEITA	38.1	41.2	35.1
KATAVI	37.9	40.8	35.7
NJOMBE	43.3	40.5	46.1
SIMIYU	39.6	43.1	36.2
SONGWE	35.8	31.2	39.3

Appendix 4: Regional Performance on the Missing number subtask

Region	Regional Mean score (%) on Missing Numbers	Scores by Gender	
		Boys (%)	Girls (%)
ARUSHA	49.4	51.1	47.4
DAR ES SALAAM	51.6	49.7	53.3
DODOMA	43.8	43.7	43.8
IRINGA	38.9	37.9	39.8
KAGERA	45.4	46.9	43.9
KIGOMA	31.0	34.7	26.9
KILIMANJARO	41.7	38.2	45.5
LINDI	35.8	36.1	35.6
MARA	33.0	33.2	32.8
MBEYA	38.6	41.2	35.9
MOROGORO	56.0	56.6	55.4
MTWARA	40.1	40.2	40.0
MWANZA	34.2	36.3	32.3
PWANI	42.3	43.7	40.6
RUKWA	32.2	34.4	30.1
RUVUMA	55.5	52.1	58.7
SHINYANGA	40.6	42.0	39.4
SINGIDA	39.4	41.2	37.6
TABORA	42.4	43.8	41.1
TANGA	42.7	40.6	44.9
MANYARA	46.0	44.4	47.6
GEITA	42.4	45.0	40.1
KATAVI	35.1	37.7	33.3
NJOMBE	42.4	40.2	44.6
SIMIYU	43.7	49.9	36.8
SONGWE	34.6	30.3	37.9

Appendix 5: Regional Performance on the Solving Word Problem Subtask

Region	Regional Mean score (%) on Solving Word Problems	Mean score by Gender	
		Boys (%)	Girls (%)
ARUSHA	43.0	41.8	44.4
DAR ES SALAAM	52.1	50.0	53.9
DODOMA	46.7	45.6	47.5
IRINGA	36.9	34.9	38.6
KAGERA	42.4	40.5	44.1
KIGOMA	30.5	30.8	30.0
KILIMANJARO	43.0	39.0	47.4
LINDI	38.2	37.4	39.2
MARA	31.5	31.8	31.1
MBEYA	38.4	40.5	36.3
MOROGORO	59.7	59.7	59.8
MTWARA	33.5	31.9	35.3
MWANZA	33.9	34.9	33.0
PWANI	43.6	41.4	46.2
RUKWA	26.5	27.9	25.2
RUVUMA	47.5	46.1	48.8
SHINYANGA	34.1	33.8	34.4
SINGIDA	37.3	37.2	37.3
TABORA	35.5	38.7	32.5
TANGA	43.6	41.5	45.7
MANYARA	38.8	39.7	38.0
GEITA	36.8	40.1	33.7
KATAVI	33.3	33.2	33.5
NJOMBE	42.9	39.5	46.2
SIMIYU	41.5	46.2	36.2
SONGWE	27.5	28.4	26.7

Appendix 6: Regional Performance on the Writing subtask

Region	Regional Mean Scores on Writing (%)	Gender	
		Boys (%)	Girls (%)
ARUSHA	59.8	57.0	63.1
DAR ES SALAAM	72.0	70.0	73.8
DODOMA	61.8	59.2	63.7
IRINGA	61.9	58.8	64.7
KAGERA	51.3	49.9	52.6
KIGOMA	35.2	34.7	35.8
KILIMANJARO	66.5	63.2	70.3
LINDI	49.1	46.4	52.0
MARA	40.6	39.4	42.1
MBEYA	50.0	49.7	50.3
MOROGORO	68.5	66.3	70.7
MTWARA	54.5	53.1	56.0
MWANZA	42.9	39.9	45.6
PWANI	55.0	51.9	58.4
RUKWA	37.5	35.2	39.6
RUVUMA	59.6	54.5	64.6
SHINYANGA	45.0	41.9	47.7
SINGIDA	47.0	46.1	47.9
TABORA	46.5	49.1	43.6
TANGA	62.7	58.7	66.9
MANYARA	53.5	50.3	56.6
GEITA	36.4	37.3	35.4
KATAVI	42.1	38.1	45.1
NJOMBE	63.0	54.5	70.3
SIMIYU	47.8	53.6	41.3
SONGWE	41.4	36.8	45.0

Appendix 7: Overall Regional Rank on the 2019 3R Study

Region	2019 3Rs Study Ranks						
	Oral Reading Fluency Subtask	Reading Comprehension Subtask	Addition and Subtraction Subtask	Word Problem Subtask	Missing Numbers Subtask	Writing Subtask	Overall Rank
MOROGORO	2	2	1	1	1	2	1
DAR ES SALAAM	1	1	2	2	3	1	2
DODOMA	6	5	3	4	7	7	3
TANGA	4	4	8	6	9	5	4
RUVUMA	9	9	6	3	2	9	5
KILIMANJARO	5	8	5	7	14	3	6
NJOMBE	7	7	7	9	11	4	7
PWANI	11	3	4	5	13	10	8
ARUSHA	8	15	14	8	4	8	9
IRINGA	3	6	18	16	18	6	10
MANYARA	10	16	19	12	5	12	11
KAGERA	17	21	9	10	6	13	12
SIMIYU	13	18	12	11	8	16	13
SINGIDA	12	12	11	15	17	17	14
LINDI	19	10	10	14	20	15	15
MBEYA	14	13	15	13	19	14	15
MTWARA	15	11	25	21	16	11	17
TABORA	21	14	23	18	12	18	18
GEITA	22	19	16	17	10	25	19
SHINYANGA	23	23	13	19	15	19	20
SONGWE	16	20	20	25	22	22	21
MWANZA	20	22	21	20	23	20	22
MARA	18	17	22	23	24	23	23

Region	2019 3Rs Study						
	Ranks						
	Oral Reading Fluency Subtask	Reading Comprehension Subtask	Addition and Subtraction Subtask	Word Problem Subtask	Missing Numbers Subtask	Writing Subtask	Overall Rank
KATAVI	26	24	17	22	21	21	24
RUKWA	24	25	26	26	25	24	25
KIGOMA	25	26	24	24	26	26	26

Appendix 8: Trends in Regional Performance between 2015/16 - 2019

Percentage of Pupils who met the Oral Reading Fluency and Comprehension Benchmark by Region

Region	Oral reading Fluency (%)		(%) Change in ORF	Comprehension (%)		(%) Change in Comprehension
	2016	2019		2016	2019	
ARUSHA	11	4.8	-6.2	19	35.1	16.1
DAR ES SALAAM	16	8.4	-7.6	29	62.8	33.8
DODOMA	11	5.8	-5.2	16	47.8	31.8
GEITA	9	3.0	-6.0	15	31.0	16.0
IRINGA	11	8.3	-2.7	19	45.2	26.2
KAGERA	5	3.1	-1.9	8	26.2	18.2
KATAVI	2	1.2	-0.8	6	25.4	19.4
KIGOMA	3	3.3	0.3	6	27.1	21.1
KILIMANJARO	13	10.0	-3.0	26	42.8	16.8
LINDI	4	4.5	0.5	9	49.8	40.8
MANYARA	5	5.7	0.7	12	33.9	24.9
MARA	3	4.9	1.9	7	30.9	21.9
MBEYA	3	3.2	0.2	5	36.1	31.1
MOROGORO	8	8.5	0.5	19	62.8	43.8

Region	Oral reading Fluency (%)		(%) Change in ORF	Comprehension (%)		(%) Change in Comprehension
	2016	2019		2016	2019	
MTWARA	3	3.6	0.6	7	42.8	35.8
MWANZA	2	3.4	1.4	7	28.0	21.0
NJOMBE	8	6.7	-1.3	17	43.0	26.0
PWANI	9	7.7	-1.3	14	53.5	39.5
RUKWA	1	2.3	1.3	5	25.3	20.3
RUVUMA	4	4.1	0.1	8	43.4	35.4
SHINYANGA	5	4.8	-0.2	11	28.8	17.8
SIMIYU	6	6.6	0.6	11	30.7	19.7
SINGIDA	5	9.2	4.2	9	36.7	27.7
SONGWE	-	3.5	3.5	-	32.2	32.2
TABORA	3	1.8	-1.2	9	36.4	27.4
TANGA	8	8.0	0.0	15	51.9	36.9

Percentage of Zero Scores on Oral Reading Fluency and Comprehension by Region

Region	Oral reading Fluency %		% Change in ORF	Comprehension %		% Change in Comprehension
	2016	2019		2016	2019	
ARUSHA	7.0	13.0	6.0	17.0	26.6	9.6
DAR ES SALAAM	4.0	4.0	0.0	7.0	7.5	0.5
DODOMA	8.0	10.1	2.1	18.0	15.4	-2.6
GEITA	8.0	22.6	14.6	15.0	31.1	16.1
IRINGA	4.0	5.0	1.0	7.0	11.6	4.6
KAGERA	11.0	11.8	0.8	24.0	26.7	2.7
KATAVI	11.0	23.5	12.5	18.0	33.5	15.5

Region	Oral reading Fluency %		% Change in ORF	Comprehension %		% Change in Comprehension
	2016	2019		2016	2019	
KIGOMA	15.0	27.8	12.8	22.0	36.8	14.8
KILIMANJARO	8.0	9.0	1.0	12.0	13.8	1.8
LINDI	18.0	18.7	0.7	26.0	23.2	-2.8
MANYARA	17.0	14.7	-2.3	30.0	25.7	-4.3
MARA	28.0	20.5	-7.5	42.0	29.0	-13.0
MBEYA	22.0	14.9	-7.1	35.0	20.9	-14.1
MOROGORO	21.0	7.9	-13.1	27.0	10.3	-16.7
MTWARA	24.0	16.8	-7.2	35.0	20.9	-14.1
MWANZA	17.0	19.9	2.9	29.0	30.2	1.2
NJOMBE	4.0	7.8	3.8	10.0	13.0	3.0
PWANI	8.0	12.6	4.6	14.0	18.4	4.4
RUKWA	25.0	23.1	-1.9	40.0	31.5	-8.5
RUVUMA	16.0	13.6	-2.4	24.0	17.1	-6.9
SHINYANGA	10.0	21.6	11.6	30.0	30.9	0.9
SIMIYU	27.0	19.9	-7.1	42.0	29.3	-12.7
SINGIDA	13.0	13.3	0.3	24.0	20.3	-3.7
SONGWE	-	21.1	21.1	-	31.7	31.7
TABORA	24.0	17.1	-6.9	32.0	26.4	-5.6
TANGA	18.0	12.1	-5.9	25.0	16.5	-8.5

Percentage of Pupils who Met the Additional and Subtraction Level 2 and Missing Number Benchmark by Region

Region	Additional and Subtraction L2 (%)		Change in %	Missing Number (%)		Change in %
	2016	2019		2016	2019	
ARUSHA	11.0	18.1	7.1	14.0	47.1	33.1
DAR ES SALAAM	10.0	25.3	15.3	15.0	48.8	33.8
DODOMA	13.0	27.2	14.2	7.0	41.2	34.2
GEITA	14.0	14.5	0.5	16.0	40.4	24.4
IRINGA	6.0	12.1	6.1	9.0	33.6	24.6
KAGERA	11.0	20.2	9.2	14.0	40.9	26.9
KATAVI	14.0	15.5	1.5	14.0	31.4	17.4
KIGOMA	8.0	11.9	3.9	19.0	26.8	7.8
KILIMANJARO	7.0	20.6	13.6	13.0	34.3	21.3
LINDI	5.0	20.0	15.0	10.0	30.3	20.3
MANYARA	4.0	16.1	12.1	11.0	44.2	33.2
MARA	2.0	11.8	9.8	7.0	27.5	20.5
MBEYA	10.0	13.9	3.9	6.0	35.9	29.9
MOROGORO	12.0	26.0	14.0	16.0	56.5	40.5
MTWARA	3.0	6.2	3.2	6.0	35.9	29.9
MWANZA	8.0	12.9	4.9	11.0	29.1	18.1
NJOMBE	10.0	19.8	9.8	8.0	39.7	31.7
PWANI	7.0	22.6	15.6	9.0	41.8	32.8
RUKWA	6.0	5.1	-0.9	3.0	29.0	26.0
RUVUMA	5.0	14.1	9.1	4.0	56.5	52.5
SHINYANGA	4.0	15.2	11.2	10.0	38.0	28.0

Region	Additional and Subtraction L2 (%)		Change in %	Missing Number (%)		Change in %
	2016	2019		2016	2019	
SIMIYU	7.0	20.2	13.2	10.0	45.8	35.8
SINGIDA	10.0	18.1	8.1	15.0	34.5	19.5
SONGWE	-	16.0	16.0	-	31.0	31.0
TABORA	8.0	11.5	3.5	9.0	40.6	31.6
TANGA	6.0	18.6	12.6	7.0	38.9	31.9

Percentage of Zero Scores on Additional and Subtraction Level II and Missing Number by Region

Region	Additional and Subtraction L2 (%)		Change in %	Missing Number (%)		Change in %
	2016	2019		2016	2019	
ARUSHA	29.0	26.2	-2.8	4.0	15.6	11.6
DAR ES SALAAM	16.0	9.5	-6.5	2.0	9.2	7.2
DODOMA	21.0	10.4	-10.6	4.0	17.2	13.2
GEITA	26.0	27.2	1.2	4.0	28.4	24.4
IRINGA	35.0	20.2	-14.8	3.0	20.0	17.0
KAGERA	27.0	21.5	-5.5	8.0	20.8	12.8
KATAVI	32.0	29.4	-2.6	8.0	34.3	26.3
KIGOMA	22.0	33.7	11.7	6.0	37.7	31.7
KILIMANJARO	26.0	17.1	-8.9	4.0	14.5	10.5
LINDI	27.0	24.0	-3.0	5.0	27.2	22.2
MANYARA	34.0	28.3	-5.7	9.0	22.3	13.3
MARA	50.0	31.2	-18.8	11.0	33.8	22.8
MBEYA	40.0	19.4	-20.6	12.0	27.2	15.2

Region	Additional and Subtraction L2 (%)		Change in %	Missing Number (%)		Change in %
	2016	2019		2016	2019	
MOROGORO	19.0	10.2	-8.8	9.0	8.6	-0.4
MTWARA	46.0	25.5	-20.5	10.0	24.3	14.3
MWANZA	35.0	26.2	-8.8	9.0	31.1	22.1
NJOMBE	26.0	19.1	-6.9	5.0	21.2	16.2
PWANI	25.0	14.6	-10.4	3.0	23.1	20.1
RUKWA	44.0	42.8	-1.2	14.0	35.6	21.6
RUVUMA	42.0	15.3	-26.7	11.0	14.2	3.2
SHINYANGA	42.0	23.8	-18.2	6.0	30.7	24.7
SIMIYU	41.0	27.5	-13.5	13.0	33.9	20.9
SINGIDA	23.0	20.3	-2.7	5.0	25.9	20.9
SONGWE	-	27.8	27.8	-	35.9	35.9
TABORA	30.0	30.4	0.4	5.0	25.1	20.1
TANGA	38.0	18.9	-19.1	8.0	18.0	10.0

Appendix 09: Questionnaire for Head Teachers (Heads of Schools)

BARAZA LA MTIHANI LA TANZANIA
UPIMAJI WA STADI YA KUSOMA, KUANDIKA NA KUHESABU
DODOSO LA MWALIMU MKUU

Jina la Shule: …….

Namba ya shule: ……

Mkoa: ……

Wilaya: ……

A: Taarifa za shule kwa ujumla

Tafadhali jaza taarifa kuhusu wanafunzi na walimu wa KKK katika shule yako kwa kuandika katika visanduku/sehemu zilizoachwa wazi.

1. Je, uliwahi kuhudhuria mafunzo ya stadi za kusoma Kuandika na Kuhesabu?
   Ndiyo ☐ Hapana ☐
2. Kuna walimu wangapi wa darasa la 2 wanaofundisha shule hii? ☐
3. Je, kuna walimu wangapi wa darasa la pili waliopo shuleni leo? ☐
4. Je, kuna mikondo mingapi ya wanafunzi wa darasa la 2? ☐
5. Kuna wanafunzi wangapi wa darasa la pili walioandikishwa katika shule hii? ☐
   Kati yao wavulana ni wangapi? ☐ na Wasichana ni wangapi? ☐
6. Je, Kuna wanafunzi wangapi waliohudhuria Shuleni leo? ☐

   Kati yao Wavulana ni Wangapi? ☐ na Wasichana ni wangapi? ☐

Je, kuna wanafunzi walioshindwa kufanya upimaji? Kama wapo waorodheshe.

Na.	Namba ya Mwanafunzi	Sababu Ya Kutofanya Upimaji

B: Taarifa kuhusu vifaa vya kufundishia na kujifunzia

Tafadhali jaza maoni yako kuhusu uwepo wa vifaa vya kufundishia na kujifunzia kwa kuweka alama ya vema (✓) kwenye uchaguzi unaolingana na maoni yako.

Na.	swali	Hafifu	Chini ya Wastani	Wastani Mzuri	Mzuri	Mzuri Sana
(i)	Upatikanaji wa vitabu vya kiada kufundishia stadi za kuhesabu shuleni kwako ni wa namna gani?					
(ii)	Upatikanaji wa vitabu vya ziada kwa ajili ya					

Na.	swali	Hafifu	Chini ya Wastani	Wastani Mzuri	Mzuri	Mzuri Sana
	mazoezi ya stadi ya kuhesabu unaweza kuelezwa kuwa ni:					
(iii)	Uwepo wa vifaa vya kufundisha stadi ya kuhesabu (ama vile vihesabio na vifaa vingine unaweza kuelezwa kuwa ni:					
(iv)	Uwepo wa vifaa vya kufundishia stadi ya kuandika (kama vile vibao na vifaa vingine) unaweza kuelezwa kuwa ni:					
(v)	Je, uwepo wa vitabu vya kidada vya kufundishia stadi ya kusoma unaweza kuuelezeaje?					
(vi)	Je, unaweza kuelezeaje uapatikanaji wa vifaa vinavyolenga kuendeleza stadi ya kusoma kama vile vitabu vya hadithi fupifupi kwa watoto wadogo?					

C: Taarifa kuhudu mazingira ya ufundishaji na ujifunzaji

Tafadhali jibu maswali kuhusu mazingira ya ufundishaji na ujifunzaji kwa kuweka alama ya vema (✓) kwenye kisanduku kulingana na uchaguzi wako kuhusu ufundishaji na ujifunzaji wa stadi za KKK katika shule yako.

Na.	Swali	Hafifu	Chini ya Wastani	Wastani	Mzuri	Mzuri Sana
(i)	Uwepo wa madawati, viti na meza za kukalia wanafunzi na walimu shuleni kwako wakati wa kujifunza unaweza kuelezwa kuwa ni;					
(ii)	Ikilinganishwa na idadi ya wanafunzi wa darasa la 2 waliopo shuleni kwa sasa, hali ya uwepo wa vyumba vya madarasa inaweza kuelezewa kuwa ni:					
(iii)	Je, upatikanaji wa vyanzo vya maji kwa ajili ya kunywa wanafunzi pamoja na usafi binafsi kama vile kunawa wanapotoka shuleni unaweza kuelezewa kuwa ni:					

D: Changamoto zinazojitokeza wakati wa ujifunzaji wa wanafunzi wa stadi za KKK

Tafadhali jibu maswali kuhusu changamoto zinazojitokeza ambazo zinafanya ujifunzaji wa wanafunzi wa stadi za KKK kuwa mgumu kwa kuweka alama ya vema (✓) katika changamoto inayojitokeza zaidi. (unaweza kuweka vema kwenye changamoto zaidi ya moja).

(i) Umbali wa wanafunzi wengi kutoka shule ilipo ☐

(ii) Wanafunzi kukosa masomo mara kwa mara kutokana na mahudhurio yasiyoridhisha ☐

(iii) Uhaba wa walimu ikilinganishwa na idadi ya wanafunzi ☐

(iv) Kupokea wanafunzi wanaohamia ambao stadi zao za KKK haziridhishi. ☐

(v) Uhaba wa vitendea kazi kama vile vitabu ikilinganishwa na idadi ya wanafunzi ☐

(vi) Changamoto nyinginezo (Zitaje kama zipo) _____
_____
_____
_____

E: Upatikanaji na maoni kuhusu kitabu cha uchambuzi wa matokeo ya upimaji wa mwaka 2018

(i) Je, umepata kitabu chenye taarifa ya uchambuzi wa upimaji wa KKK wa mwaka 2018?

Ndiyo ☐ Hapana ☐

(ii) Je, unafikiri vitabu hivyo vya uchambuzi vimeweza kusaidia walimu katika kuboresha ufundishaji na ujifunzaji wa stadi za KKK?

Ndiyo ☐ Hapana ☐

F: Tarifa Nyinginezo

Je, ni jambo gani ambalo halikuulizwa kwenye dodoso hili kuhusu mazingira ya ufundishaji na ujifunzaji ambalo ungependa Baraza la Mitihani lifahamu? (Toa maelezo mafupi) _____
_____
_____
_____

Asante kwa Ushirikiano Wako!

Appendix 10: Oral Reading and Oral Arithmetic Assessment Tool

JAMHURI YA MUUNGANO WA TANZANIA
BARAZA LA MITIHANI LA TANZANIA
UPIMAJI WA KITAIFA WA DARASA LA PILI

STADI YA KUSOMA NA KUHESABU

KARATASI YA MWANAFUNZI

Muda: Dakika 20 Jumatano, 29 Januari 2020 asubuhi

Maelekezo

1. Mwanafunzi anatakiwa kujibu maswali **yote kwa mdomo**.
2. Kila mwanafunzi atapimwa kwa **dakika 20**.
3. Msimamizi anatakiwa kujaza taarifa za mwanafunzi katika nafasi zilizo wazi juu ya fomu maalum ya upimaji kwa **kalamu ya wino wa bluu**.
4. Mwanafunzi atakapokuwa amemaliza kusoma na kujibu maswali ya ufahamu na kuhesabu, msimamizi anatakiwa kujaza alama katika skeli ya upimaji kwa kutumia **kalamu ya wino mwekundu**.

Tina na Subira ni marafiki. Wanaishi kijiji cha Ng'alo. Kijiji chao kina shida kubwa ya maji. Siku moja, Tina na Subira walikwenda kisimani kuteka maji. Subira alichukua kata na kujaza ndoo yake. Mara akaanza kupiga kelele, kumbe alikuwa amechomwa na mwiba. Hatimaye, Subira alishindwa kubeba ndoo. Wazazi wake walimpeleka hospitali.

1. 11 + 6 =

2. 15 + 8 =

3. 11 + 23 =

4. 27 + 36 =

5. 42 + 18 =

6. 17 - 3 =

7. 20 - 8 =

8. 35 - 24 =

9. 46 - 19 =

10. 50 - 21 =

Appendix 11: Oral Reading and Oral Arithmetic Assessment Scale

JAMHURI YA MUUNGANO WA TANZANIA

BARAZA LA MITIHANI LA TANZANIA

Fomu Maalum ya Kujaza Alama za Mwanafunzi katika Upimaji wa Kusoma na Kuhesabu

Jina la Mwanafunzi_____

Namba ya Mwanafunzi_____

KWA MATUMIZI YA MPIMAJI TU					
STADI YA KUSOMA			STADI YA KUHESABU		
Namba ya Swali	Alama	Saini ya Mpimaji	Namba ya Swali	Alama	Saini ya Mpimaji
1.			1.		
			2.		
			3.		
			4.		
			5.		
2.			6.		
			7.		
			8.		
			9.		
			10.		
Jumla ya Alama					

SEHEMU A

201 STADI YA KUSOMA

1. Kusoma kifungu cha maneno kwa ufasaha, umakini na kasi inayotakiwa. (alama 25).

Maelekezo kwa Msimamizi

Weka alama ya **mkwaju (/)** kwa kila neno ambalo mwanafunzi **ameshindwa** kulisoma kwenye kifungu cha maneno. Iwapo uliweka alama ya mkwaju mwanafunzi alipokosea kusoma neno na akarudia kusoma kwa usahihi, zungushia **(Ø)** neno hilo. (Kila neno **moja** sahihi **alama 00½**)

(a) Mwelekeze mwanafunzi kusoma kifungu cha maneno kwa sauti, umakini na haraka kadri awezavyo. Mwanafunzi atakapokuwa anasoma, fuatilia usomaji wake kwa kutumia kifungu cha maneno kilichopo katika **Skeli ya Upimaji**.

(b) Iwapo mwanafunzi atashindwa kusoma neno baada ya **sekunde 3** mwelekeze kusoma neno linalofuata.

(c) Iwapo mwanafunzi atashindwa kusoma **maneno yote** ya sentensi ya kwanza, sitisha zoezi na weka alama ya mabano [ ] katika neno la mwisho kusomwa kisha endelea na stadi ya kuhesabu.

(d) Iwapo mwanafunzi atasema **sijui** wakati akisoma, chukulia kama ni **kosa** kisha weka alama ya mkwaju·

(e) Iwapo mwanafunzi atashindwa kumaliza kusoma kifungu cha maneno ndani ya **sekunde 60**, weka alama ya mabano [ ] katika neno la mwisho alilosoma·

Maelekezo ya Msimamizi kwa Mwanafunzi

Karibu .....·Hujambo?

Hapa kuna kifungu cha maneno, nikisema anza utasoma (mwoneshe mwanafunzi kwa kugusa kwa kalamu kuanzia neno la kwanza kutoka kushoto kwenda kulia katika kila mstari)·
Utasoma maneno kwa sauti, umakini na kwa haraka kadri uwezavyo·
Weka kidole kwenye neno la kwanza· Je uko tayari? Anza·

Tina na Subira ni marafiki·
Wanaishi kijiji cha Ng'alo· Kijiji chao kina shida kubwa ya maji· Siku moja, Tina na Subira walikwenda kisimani kuteka maji· Subira alichukua kata na kujaza ndoo yake· Mara akaanza kupiga kelele, kumbe alikuwa amechomwa na mwiba· Hatimaye, Subira alishindwa kubeba ndoo· Wazazi wake walimpeleka hospitali·

Alama: ☐ ***Muda uliotumika:*** ☐

2· *Kusoma kifungu cha maneno kisha kujibu maswali kwa mdomo (alama 25)·*

Maelekezo kwa Msimamizi

(a) Mwongoze mwanafunzi kusoma tena kifungu cha maneno (mwoneshe kwa kugusa kwa kalamu) kuanzia sentensi ya kwanza kutoka kushoto kwenda kulia katika kila mstari. Baada ya mwanafunzi kusoma ndani ya **dakika 3**, chukua karatasi ya mwanafunzi kisha muulize maswali yaliyopo kwenye **Skeli ya Upimaji**.

(b) Mwanafunzi akitoa jibu sahihi zungushia alama **5**, iwapo atatoa jibu lisilo sahihi zungushia alama **0**. Endapo mwanafunzi atatoa jibu lisilo sahihi na kisha kufanya marekebisho kwa kutoa jibu sahihi, weka mkwaju kwenye alama 0 kisha andika jumla ya alama katika nafasi kwenye jedwali.

(c) Iwapo utamuuliza swali mwanafunzi na akashindwa kujibu ndani ya **sekunde 10**, zungushia alama 0 kisha endelea na swali linalofuata.

Maelekezo ya Msimamizi kwa Mwanafunzi

(a) Utasoma tena kifungu cha maneno (mwoneshe mwanafunzi kwa kugusa kwa kalamu kuanzia sentensi ya kwanza kutoka kushoto kwenda kulia katika kila mstari).

(b) Utasoma maneno kwa sauti, umakini na kwa haraka kadri uwezavyo. Baada ya kusoma nitachukua

karatasi yako kisha nitakuuliza maswali yanayotokana na kifungu cha maneno ulichosoma Je uko tayari? Anza·

Tina na Subira ni marafiki· Wanaishi kijiji cha Ng'alo· Kijiji chao kina shida kubwa ya maji· Siku moja, Tina na Subira walikwenda kisimani kuteka maji· Subira alichukua kata na kujaza ndoo yake· Mara akaanza kupiga kelele, kumbe alikuwa amechomwa na mwiba· Hatimaye, Subira alishindwa kubeba ndoo· Wazazi wake walimpeleka hospitali·

Maswali na Majibu

Kipengele	**Maswali na majibu**	**Alama**	
1·	Rafiki yake Tina anaitwa nani? **(Subira)**	5	0
2·	Tina na Subira wanaishi katika kijiji gani? **(Ng'alo)**	5	0
3·	Tina na Subira walikwenda wapi? **(Kisimani)**	5	0
4·	Subira alitumia nini kujaza maji kwenye ndoo yake? **(Kata)**	5	0

5.	Kwanini Subira alipelekwa Hospitali? **(Kwa sababu alikuwa amechomwa na mwiba/ kwa sababu alikuwa ameumia/ ili apate matibabu/ili apate dawa)**	5	0
Jumla ya Alama			

SEHEMU B

203 STADI YA KUHESABU

Maelekezo kwa Msimamizi

Zungushia alama **2** iwapo mwanafunzi atatoa jibu sahihi, zungushia alama **0** iwapo atatoa jibu lisilo sahihi. Iwapo mwanafunzi atatoa jibu lisilosahihi na kisha kufanya marekebisho na kutoa jibu sahihi, weka mkwaju kwenye alama **0** kisha andika jumla ya alama katika nafasi kwenye jedwali.

(a) Mwongoze mwanafunzi kujibu maswali ya kujumlisha na kutoa. Mpe karatasi na penseli kisha mwambie kuwa anaweza kutumia kama anataka lakini sio lazima.

(b) Iwapo mwanafunzi atatumia njia isiyoridhisha muulize kama anaweza kutumia njia nyingine.

(c) Iwapo mwanafunzi ataendelea kutumia njia isiyoridhisha au atasimama/atakwama/hatajibu kwa **sekunde 5** kisha endelea na swali linalofuata.

(d) Sitisha zoezi endapo mwanafunzi atakosa maswali **manne ya mwanzo** katika maswali ya kujumlisha kisha endelea na maswali ya kutoa.

(e) Iwapo mwanafunzi atakosa maswali **manne ya mwanzo** katika maswali ya kutoa sitisha zoezi. Endelea na mwanafunzi anayefuata.

Maelekezo ya Msimamizi kwa Mwanafunzi

(a) Hapo kuna maswali ya kujumlisha na kutoa (mwoneshe mwanafunzi kwa mkono swali la 1 hadi la 5 kisha swali la 6 hadi 10).

(b) Utaanza na swali la 1. Utajibu maswali hayo kwa mdomo. Unaweza kutumia penseli na karatasi kama unataka lakini sio lazima. Je upo tayari? Anza.

Na.	Maswali na majibu	Alama	
1.	11 + 6 = (17)	2	0
2.	15 + 8 = (23)	2	0
3.	11 + 23 = (34)	2	0
4.	27 + 36 = (63)	2	0

5.	42 + 18 = (**60**)	2	0
6.	17 - 3 = (**14**)	2	0
7.	20 - 8 = (**12**)	2	0
8.	35 - 24 = (**11**)	2	0
9.	46 - 19 = (**27**)	2	0
10.	50 - 21 = (**29**)	2	0
Jumla ya Alama			

Maoni ya msimamizi

Weka alama ya vema (√) iwapo mwanafunzi:

☐ ametumia vidole au kutali.

☐ ametumia karatasi na penseli.

☐ amejibu maswali yote kwa kichwa.

Appendix 12: Arithmetic Assessment tool for Missing Numbers and Word problem

Jina la Mwanafunzi_____

Namba ya Mwanafunzi _____

JAMHURI YA MUUNGANO WA TANZANIA
BARAZA LA MITIHANI LA TANZANIA
UPIMAJI WA KITAIFA WA DARASA LA PILI

203 STADI YA KUHESABU

Muda: Dakika 50 Jumanne, 28 Januari 2020 asubuhi

Maelekezo

1. Karatasi hii ina maswali **kumi (10)**.
2. Jibu maswali **yote**.
3. Andika majibu yote kwa **penseli**.

KWA MATUMIZI YA MPIMAJI TU					
Namba ya Swali	Alama	Saini ya Mpimaji	Namba ya Swali	Alama	Saini ya Mpimaji
3.			6.		
4.			7.		
5.			8.		
6.			9.		
7.			10.		
Jumla ya Alama					

Andika namba inayokosekana katika nafasi iliyoachwa wazi.

11. 3, 4, 5, __, 7, 8.

12. 27, 26, 25, 24, ___.

13. 54, 56, 58, ___, 62.

14. 10, ___, 30, 40, 50.

15. 40, 45, ___, 55, 60.

16. Kikapu kina machungwa 3. Iwapo yataongezwa machungwa 2, kikapu hicho kitakuwa na machungwa mangapi?

_____

_____

_____

_____

_____

_____

17. Juma alikuwa na pipi 7. Alimpa rafiki yake pipi 4. Je, alibakiwa na pipi ngapi?

_____

_____

_____

_____

_____

18. Daftari langu la Kuandika lina kurasa 48. Ikiwa kurasa 32 zimejaa, je, zimebaki kurasa ngapi ambazo hazijaandikwa?

_____

_____

_____

_____

_____

19. Musa alinunua mayai 33 siku ya kwanza. Siku ya pili alinunua mayai 19. Je, jumla alinunua mayai mangapi?

_____

_____

_____

_____

_____

_____

20. Mwalimu alikuwa na penseli 51. Aliwapa wanafunzi penseli 17. Je, alibakiwa na penseli ngapi?

Appendix 13: Writing Skills Assessment Tool

JAMHURI YA MUUNGANO WA TANZANIA

BARAZA LA MITIHANI LA TANZANIA

UPIMAJI WA DARASA LA PILI

202 STADI YA KUANDIKA

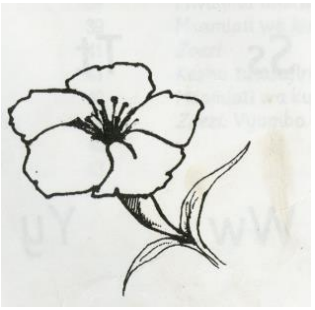
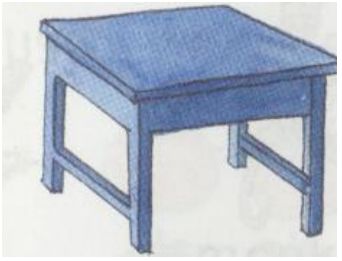
Muda: Dakika 40 Jumanne, 28 Januari 2020 asubuhi

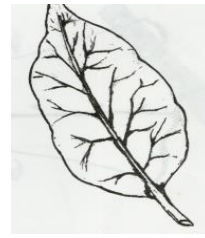
Maelekezo

5. Karatasi hii ina maswali **matatu**. **(3)**.
6. Jibu maswali **yote**.
7. Andika **majibu yako yote** kwa kutumia penseli.
8. Andika **Jina lako** na **Namba yako** katika kila ukurasa.

KWA MATUMIZI YA MPIMAJI TU		
Namba ya Swali	**Alama**	**Saini ya Mpimaji**
1.		
2.		
3.		
Jumla		

1. Tazama kwa makini picha zifuatazo kisha andika **majina yake** katika nafasi zilizo wazi.

(a)	 _____	(b)	 _____
(c)	 _____	(d)	 _____

(e)	 _____	(f)	 _____
(g)	 _____	(h)	 _____
(i)	 _____	(j)	 _____

2. Pigia mstari maneno yaliyoandikwa kwa **herufi ndogo**.

(a) MVULANA, msichana, BABU, bibi

(b) NYANYA, KAROTI, pilipili, kitunguu

(c) dawati, KITI, meza, KABATI

(d) PAPAI, pera, NANASI, fenesi

(e) fisi, MBUZI, twiga, SUNGURA

3. **Nakili** kifungu cha maneno kifuatacho na kisha weka alama za uandishi yaani: **nukta (.)**, **mkato (,)**, **alama ya kushangaa (!)**, na **alama ya kuuliza (?)** mahali panapostahili.

Umeiona ile bustani yenye maua mazuri ___ Looh ___ inapendeza sana ___ pamoja na kuwa inahitaji kumwagiliwa maji mengi ___

_____
_____
_____
_____
_____
_____