

A Pilot Study Assessing the Impact of “Jolly Phonics” on the English Literacy Skills of Early Grade Pupils in Kilifi County, Kenya.

Report compiled by Maisie Hunt,
Project Officer, Universal Learning Solutions.
November 2017

1 Contents

| | | |
|-------|--|----|
| 1 | Contents | 2 |
| | Tables and Figures | 3 |
| | Abbreviations | 4 |
| | Acknowledgements | 4 |
| | About Universal Learning Solutions | 4 |
| 2 | Introduction..... | 5 |
| 2.1 | Aims and Objectives | 5 |
| 2.2 | Overview of Jolly Phonics Programme | 5 |
| 2.3 | Context | 5 |
| 2.3.1 | Pilot Timeline:..... | 5 |
| 2.3.2 | Existing teaching methods..... | 6 |
| 3 | Methodology | 6 |
| 4 | Results and Discussion | 7 |
| 4.1 | Profile of Respondents | 7 |
| 4.1.1 | Gender Split..... | 7 |
| 4.1.2 | Existing knowledge of English..... | 7 |
| 4.1.3 | Main Language at home | 8 |
| 4.1.4 | Access to learning materials at home..... | 9 |
| 4.2 | Summary of Results..... | 11 |
| 4.2.1 | Mean score at baseline | 11 |
| 4.2.2 | Mean score at end-line and mean score change..... | 12 |
| 4.3 | Letter sounds..... | 15 |
| 4.4 | Whole word reading..... | 16 |
| 4.5 | Sentence reading..... | 17 |
| 4.6 | Dictation | 17 |
| 4.7 | Individual School Progress..... | 18 |
| 5 | Consideration of Other Influencing Factors | 20 |
| 5.1 | Factors Contributing to the Success of the Pilot | 20 |
| 5.2 | Challenges Experienced in the Pilot | 21 |
| 6 | Conclusions..... | 21 |
| 7 | Recommendations | 22 |
| 8 | Appendices | 23 |
| 8.1 | Appendix A: Contents of a Jolly Phonics Starter Kit | 23 |
| 9 | Appendix B: Raw Data | 24 |
| 9.1 | Profile of Respondents | 24 |
| 9.2 | Raw Score Results..... | 25 |
| 9.3 | Relative Score Results..... | 25 |
| 9.4 | Raw Score Results (Disaggregated) | 26 |
| 9.5 | Relative Score Results (Disaggregated) with Score Change | 27 |



Tables and Figures

| | |
|---|----|
| Table 1: Demographic profile of respondents (Collated) | 7 |
| Table 2: Demographic profile of respondents at baseline (Disaggregated) | 7 |
| Table 3: Mean relative scores | 11 |
| Table 4: Individual School Scores | 14 |
| Table 5: Average Raw Scores..... | 15 |
| Table 6: Average Relative Scores (Disaggregated) | 18 |
| | |
| Figure 4.1: Use of English at home | 7 |
| Figure 4.2: Main language spoken at home | 8 |
| Figure 4.3: ECD Experience..... | 9 |
| Figure 4.4: Primary 1 Pupil Age Range | 9 |
| Figure 4.5: Household items owned..... | 10 |
| Figure 4.6: Literacy pre-test scores for each assessment..... | 12 |
| Figure 4.7: Literacy post-test scores for each assessment..... | 12 |
| Figure 4.8: Mean change (relative scores) for each literacy assessment..... | 13 |
| Figure 4.9: Mean change (raw scores) for each literacy assessment | 14 |
| Figure 4.10: Mean change: No, of letter sounds correctly identified..... | 14 |
| Figure 4.11: Mean change: No, of words read correctly..... | 15 |
| Figure 4.12: Mean change: Reading Age (months)..... | 15 |
| Figure 4.13: Mean change: Sentence Reading..... | 16 |
| Figure 4.14: Mean change: Dictation/word writing..... | 16 |



Abbreviations

| | |
|------|--------------------------------|
| ECD | Early Childhood Development |
| EGRA | Early Grade Reading Assessment |
| ULS | Universal Learning Solutions |

Acknowledgements

We would like to thank the following organisations and individuals for their support and involvement in this project:

- Kilifi County Education Department
- Pwani University
- Education Matters East Africa -Sian Summers Issa, and assistants Bilal Ali and Maureen Muroso
- Jolly Learning
- All participating schools; head teachers, teachers and pupils

About Universal Learning Solutions

Universal Learning Solutions (ULS) is a not-for-profit organisation that works with government, educators, donors and experts around the world to provide bespoke services that deliver innovative literacy solutions. Our work enables and enthuses teachers to deliver high quality literacy tuition and builds the institutional capacity of partners through knowledge and skills transfer. Our vision is of a world where all children can read and write with confidence and enjoy their right to learn. Through this we believe we can help release a child's infinite potential.

The approach of ULS is to combine the proven synthetic phonics literacy method with fun, contextually appropriate tools that enable and enthuse teachers to deliver high quality literacy tuition. Through an exciting partnership with the publishers of Jolly Phonics, the world's leading synthetic phonics programme, ULS is able to provide adapted teaching and learning materials, training and on-going support for teachers to allow all children to be able to read and write. In Nigeria, Universal Learning Solutions have trained over 45,000 teachers and 2,000 government officials across in 31 states, and over 2.5 million Jolly Phonics Pupil Books have been distributed to government school pupils. This work is now expanding to cover all states in Nigeria and more schools in existing states.



2 Introduction

This pilot study presents data from a comparative pilot study run in Kilifi County, Kenya from January – October 2017. The paper first introduces the aims and objectives of the pilot, gives an overview of the Jolly Phonics method and presents the context of the study. The paper then details relevant demographic information of the pupils involved in the pilot, including details of both experimental and control schools. The Study then identifies progress made by Jolly Phonics pupils in experimental schools, comparing baseline and end line data against control school data, focusing particularly on the areas of letter sounds, whole word reading, sentence reading and dictation. The study identifies influencing factors of the pilot, summarises key findings and makes recommendations for the future in light of the evidence presented herein.

2.1 Aims and Objectives

The aim of this Jolly Futures project was to run a comparative pilot of the Jolly Phonics programme in the teaching of reading and writing of English in government primary schools in Kilifi County, Kenya, and assess its impact on early grade reading outcomes.

Specifically, the main objective of the evaluation was to determine if the synthetic phonics approach of teaching reading and writing of English, and specifically the Jolly Phonics programme, leads to faster progress in the pupils' reading and writing ability in English than those pupils not taught using the programme.

2.2 Overview of Jolly Phonics Programme

With Jolly Phonics the pupils are first taught the letter sounds of English (so the sounds of the letters, not their names). They are then taught how to 'blend' those sounds together to read words (so d-o-g makes 'dog'). In this way the spoken word 'dog' is made, or 'synthesised' (hence 'synthetic' phonics). It gives children the ability to read out new words for themselves. It also enables them to write words by segmenting the word into its sounds, and then writing the letters for those sounds. Pupils are then taught "tricky words" that do not follow the sound system. The letter sounds are taught alongside culturally appropriate stories, songs, and actions that make learning the sounds both memorable and fun.

The Jolly Phonics programme has now been used for over 20 years and has been endorsed for use in all schools in countries such as the Gambia and Trinidad and Tobago and recommended by the government in other countries, such as the UK and Nigeria. It also used in government schools in countries as diverse as Ghana, Kenya, Uganda, Nepal, India, Mexico, Seychelles, Philippines and Fiji.

2.3 Context

The pilot study was conducted in Primary 1 classes in 10 experimental schools, with 4 control schools providing comparative baseline and End-line data, in both the Kilifi Township and Tezo Area in Kenya. The pilot was implemented in partnership with the Kilifi County Education Department, part of the Ministry of Education in Kenya.

2.3.1 Pilot Timeline:

Baseline assessments of pupils were undertaken between 12th January and 3rd February 2017. Three days of initial teacher training were then delivered in both districts: at Kilifi Primary School (Kilifi District) between 27th February and 1st March, and Bahati Primary School (Tezo District) between 6th and 8th March. Mid-line monitoring visits were undertaken from 8th to 27th June 2017, lead by Sian Summers Issa and assistants supported by the Dean of Education from Pwani University.



A drop-in Jolly Phonics clinic for Teachers was held on 9th September and end line pupil assessments were undertaken between 2nd and 6th October 2017. The end line assessments were held at the latest possible date, and could be carried out no later due to exams, elections and school closing on 25th October 2017.

2.3.2 Existing teaching methods

The Jolly Phonics teaching method was introduced alongside the current Tusome programme, a DFID and USAID funded initiative to improve literacy levels of 7 million children in Kenya. Aims of the Tusome programme such as enhancing teacher's capacity to effectively deliver classroom instruction and improving access to appropriate learning resources align well with the Jolly Phonics method. The pilot study will therefore consider whether the Jolly Phonics method works well in practice alongside the Tusome programme. Additional actions to support the difference between vowels (/i/ and /u/) in English and Kiswahili have been added to the Jolly Phonics program to support teachers and children differentiating between the two languages. Culturally relevant example stories, songs and images were provided where necessary.

3 Methodology

To provide a comparison of the progress in reading and writing in English at the schools using the Jolly Phonics programme, two control schools were selected from each area for the pilot, a total of 4 schools. These control schools were not exposed to the Jolly Phonics programme and instead followed the existing methods used in teaching reading and writing. The control schools were selected to be as demographically similar to the experimental schools and be located closely to the experimental schools. At each of these experimental and control schools, a literacy assessment was undertaken at the beginning (baseline) and end (end-line) of the pilot with randomly selected Primary 1 pupils. For the baseline assessment, in total there were 243 respondents across 10 experimental schools and 99 respondents from the four control schools. These literacy assessments combined elements of the Early Grade Reading Assessment (EGRA) and Burt Reading test and assessed the following literacy skills:

- Letter sounds
- Whole word reading
- Sentence reading
- Word writing

A context interview was also undertaken with each pupil to ascertain age, gender, poverty indicators, language(s) spoken at home, whether English is spoken at home and ECD experience.



4 Results and Discussion

4.1 Profile of Respondents

This is an analysis of the two groups of schools, the ten **Experimental** schools and the four **Control** schools, determining if the schools were matched at pre-test (baseline).

4.1.1 Gender Split

| Variable | Category | Total | | | |
|----------|----------|--------------------------------|---------------------------|----------------|-----------|
| | | Experimental Schools Frequency | Control Schools Frequency | Experimental % | Control % |
| Gender | Male | 126 | 53 | 51.8% | 53.6% |
| | Female | 117 | 46 | 48.2% | 46.4% |

Table 1: Demographic profile of respondents (collated)

As shown in Table 1, the group of experimental and control schools were relatively well matched on gender. When disaggregated, Kilifi experimental and control schools were evenly matched, and Tezo schools showed a small variance. This can be attributed to enrolment in Tezo schools continuing until March 2017, so at baseline some classes only had 20-25 pupils.

| Variable | Category | Total | | | | | | | |
|----------|----------|-----------------------------|------|------------------------|------|---------------------------|------|----------------------|------|
| | | Kilifi Experimental Schools | | Kilifi Control Schools | | Tezo Experimental Schools | | Tezo Control Schools | |
| | | Frequency | % | Frequency | % | Frequency | % | Frequency | % |
| Gender | Male | 64 | 52.0 | 26 | 52.0 | 62 | 51.6 | 27 | 55.1 |
| | Female | 59 | 48.0 | 24 | 48.0 | 58 | 48.4 | 22 | 44.9 |

Table 2: Demographic profile of respondents at baseline (disaggregated)

4.1.2 Existing knowledge of English

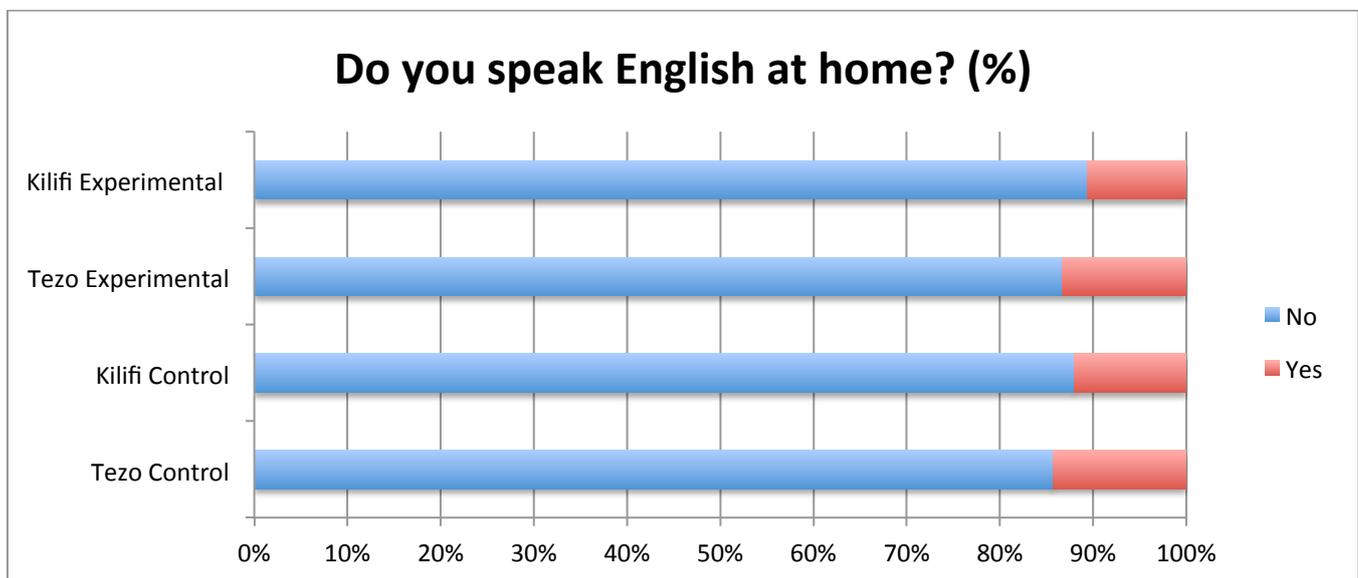


Figure 4.1: Use of English at home

Figure 4.1.2 shows pupils' use of English outside of the classroom. Kilifi experimental and control schools are closely matched, as are the Tezo experimental and control schools. Despite the apparently high percentage of English speakers in the schools, the ability of these pupils to recognise letter sounds was no higher than those who did not speak English at home. The limited use of English by all groups of students provides a good basis for comparison in testing the success of the Jolly Phonics programme.

4.1.3 Main Language at home

As Figure 4.2 (below) shows, across all school groups, Kigiriama and Kiswahili together made up between 80% and 92% of pupil's main languages spoken at home.

For Kilifi pupils, Kiswahili made up 34% of main languages across the both experimental and control schools. Kilifi experimental schools had a smaller percentage of Kigiriama speakers than control schools, at 45% compared to 64%, thus pupils in Kigiriama experimental schools held a wider range of other languages spoken compared to the control schools.

In Tezo experimental schools, Kigiriama was the main language for 72% of pupils, whereas only 41% of the control school pupils held it as their main language. The Tezo control schools held the highest percentage of Kiswahili main language pupils, and also held a more diverse range of languages spoken at home than the experimental schools.

There was a wide range of languages spoken across the school groups, with a total of 14 languages recorded. Out of the individual groups, Kilifi experimental held the largest range of home languages, with 12 recorded languages. In contrast, the Teso control schools showed the least diversity in home languages, with only one student reporting a home language other than Kigiriama or Kiswahili.

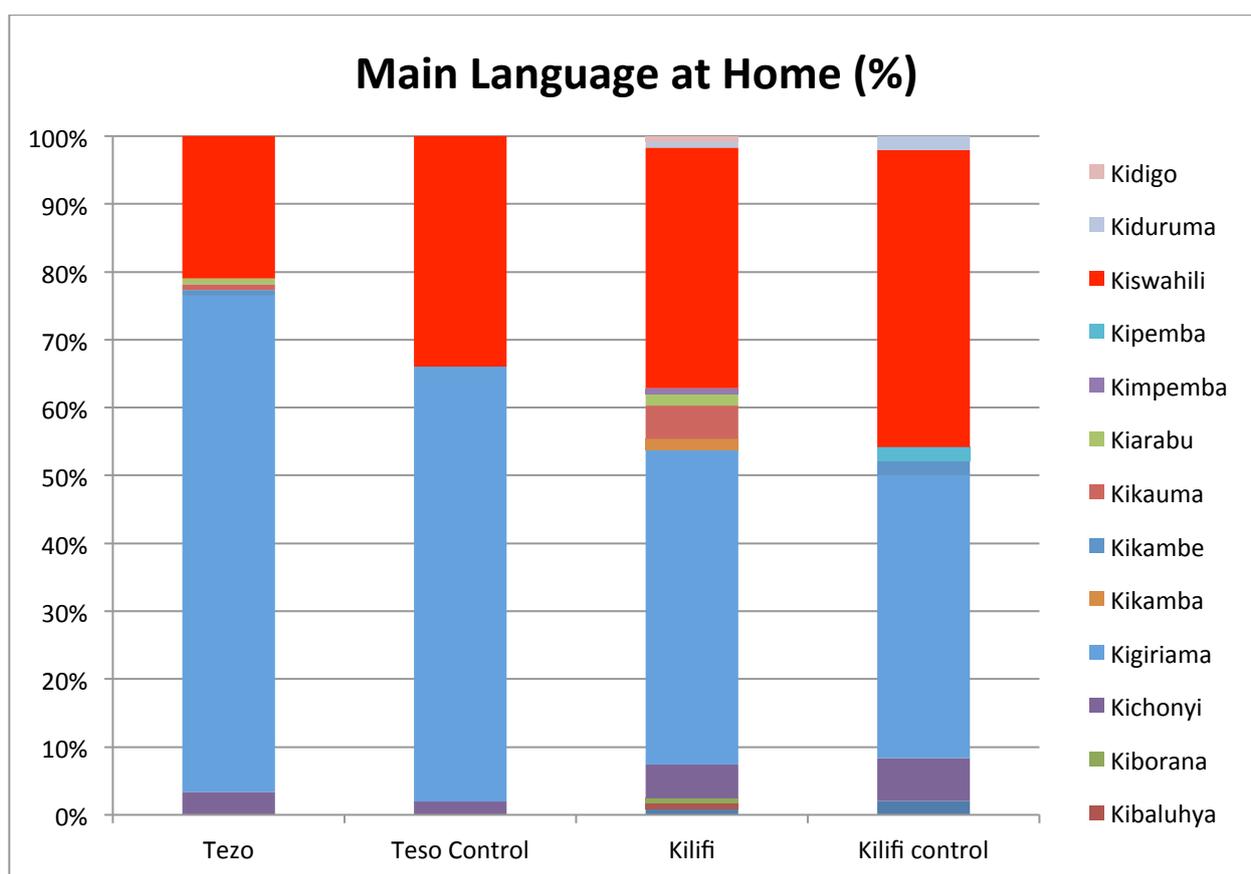


Figure 4.2: Main language spoken at home

Previous Educational Experience

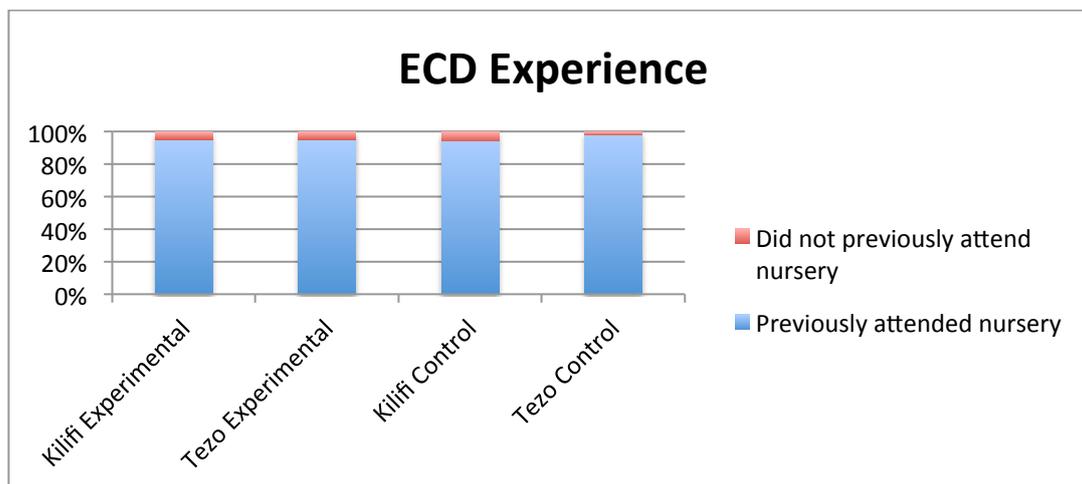


Figure 4.3: ECD Experience

Figure 4.3 indicates that the percentage of children who had attended nursery was approximately the same for the experimental and control schools in both Kilifi and Tezo (95% at experimental for both groups and 94% and 98% in Kilifi and Tezo at control respectively).

This indicates that the majority of pupils had previous experience of teaching environments prior to starting the Jolly Phonics programme.

In addition, the age range of pupils in primary 1, as indicated in Figure 4.4, suggests that there may be pupils repeating years, with at least 25% of pupils in each year aged 10 or above.

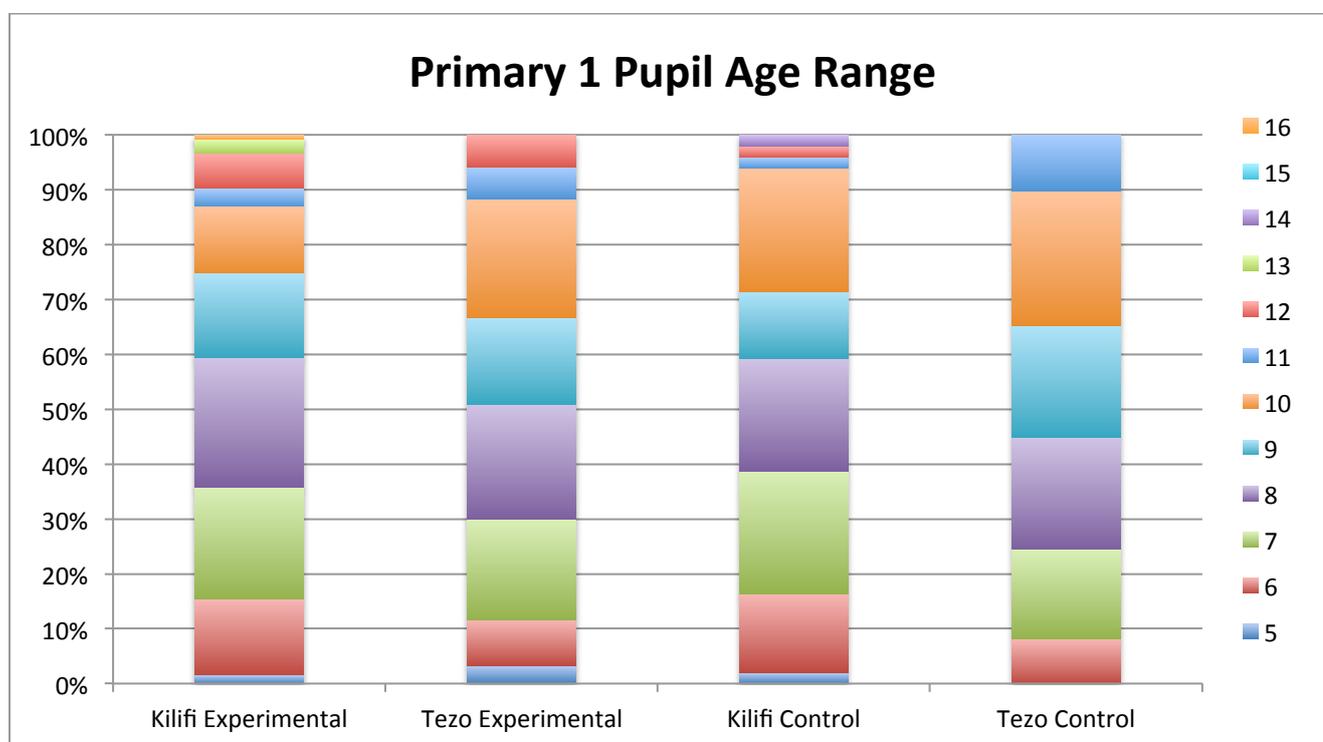


Figure 4.4: Primary 1 Pupil Age Range

4.1.4 Access to learning materials at home

Figure 4.5 illustrates that households of pupils in the control groups of schools appeared to own more radios and televisions than their experimental school counterparts. Using these measures as



an assessment of poverty it appears that the control group could be assumed on average to be wealthier than those pupils in the experimental schools. This slight difference highlights the importance of analysing the growth in scores from baseline to end line between these two groups of schools. Despite this, Tezo experimental school pupils had the same access to story books at home as the control groups.

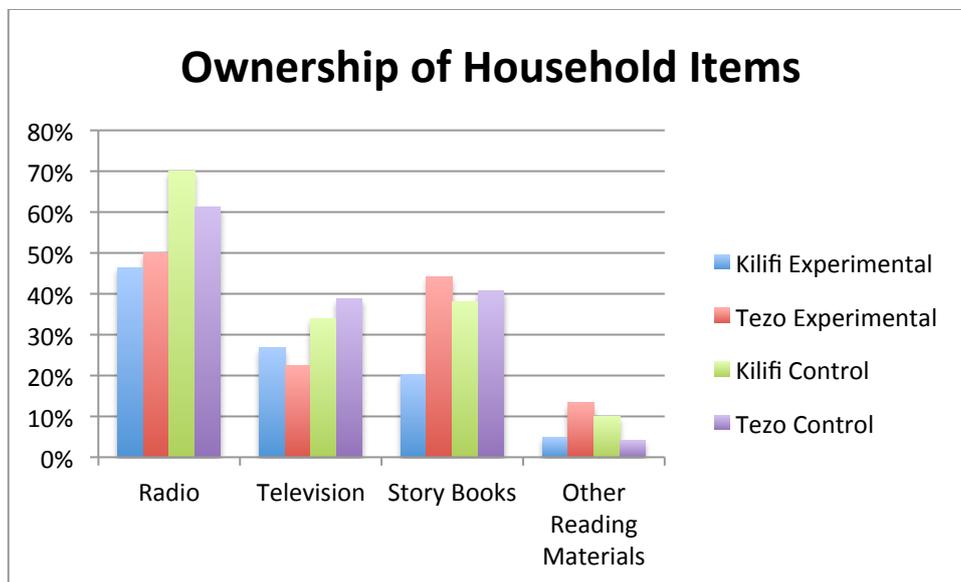


Figure 4.5: Household items owned



Teacher Training in Tezo

4.2 Summary of Results

The following section presents both baseline and endline scores for Kilifi Township and Tezo schools, enabling a comparison to be drawn as to the effect of the Jolly Phonics programme. The following table shows the mean scores for the four groups of schools, for each of the four sections of the assessment. The scores for each assessment have been converted into a *relative score* out of 100 to allow for comparisons across all four literacy assessments to be drawn. As four sections of literacy ability were tested at baseline and end line, the *total relative score* is out of a possible 400.

| Group | Average Relative Scores (out of 100) | | | | Total Relative Score (out of 400) |
|----------------------------------|--------------------------------------|-------------------|-----------------------|-------------------|-----------------------------------|
| | Letter Sound Test | Burt Reading Test | Sentence Reading Test | Word Writing Test | |
| Kilifi Experimental Pre-Test | 22.3 | 11.9 | 38.1 | 30.1 | 102.4 |
| Kilifi Control Pre-Test | 31.9 | 17.3 | 43.5 | 43.0 | 135.7 |
| Kilifi Experimental Post-Test | 81.2 | 32.7 | 84.3 | 58.7 | 256.9 |
| Kilifi Control Post-Test | 53.5 | 22.5 | 71.3 | 50.6 | 197.9 |
| Experimental Score Change | 58.9 | 20.8 | 46.2 | 28.6 | 154.5 |
| Control Score Change | 21.6 | 5.2 | 27.8 | 7.6 | 62.2 |
| Tezo Experimental Pre-Test | 26.8 | 11.9 | 52.7 | 32.7 | 124.1 |
| Tezo Control Pre-Test | 30.8 | 16.5 | 48.2 | 40.6 | 136.1 |
| Tezo Experimental Post-Test | 70.9 | 21.3 | 60.1 | 51.8 | 204.1 |
| Tezo Control Post-Test | 72.3 | 26.0 | 76.5 | 59.2 | 234.0 |
| Experimental Score Change | 44.1 | 9.4 | 7.4 | 19.1 | 80.0 |
| Control Score Change | 41.5 | 9.5 | 28.3 | 18.6 | 97.9 |

Table 3: Mean relative scores

Table 3 shows that in Kilifi Township, there is a clear score change difference between the experimental and control schools, with experimental schools making a considerably larger improvement in scores. The Tezo scores are less straightforward, with experimental schools making a smaller improvement in comparison to Tezo control schools. This is particularly apparent in sentence reading tests.

4.2.1 Mean score at baseline

Figure 4.6 (below) shows the mean test scores at baseline, before the Jolly Phonics method was implemented. It can be seen that in three of four tests, the control groups scored higher than the experimental schools. The difference in abilities between the experimental and control schools *before* the programme was implemented reiterates the importance of analysing the growth in scores from baseline to end line between these groups of schools.

In the majority of all cases, most children across all schools had limited knowledge of correct sounds. In some cases the children could not even identify the sounds by their well-known incorrect sounds ('soo' for sun 'boo' for ball) or even by letter name. In the BURT reading test, generally 2-3 students in every school were able to read a handful of words or more, however there were a good proportion of



students in one Tezo experimental school who could not read any words on the test list, and another Tezo control school where students scored particularly well. 40% of students across all groups were unable to spell more than 4 words correctly.

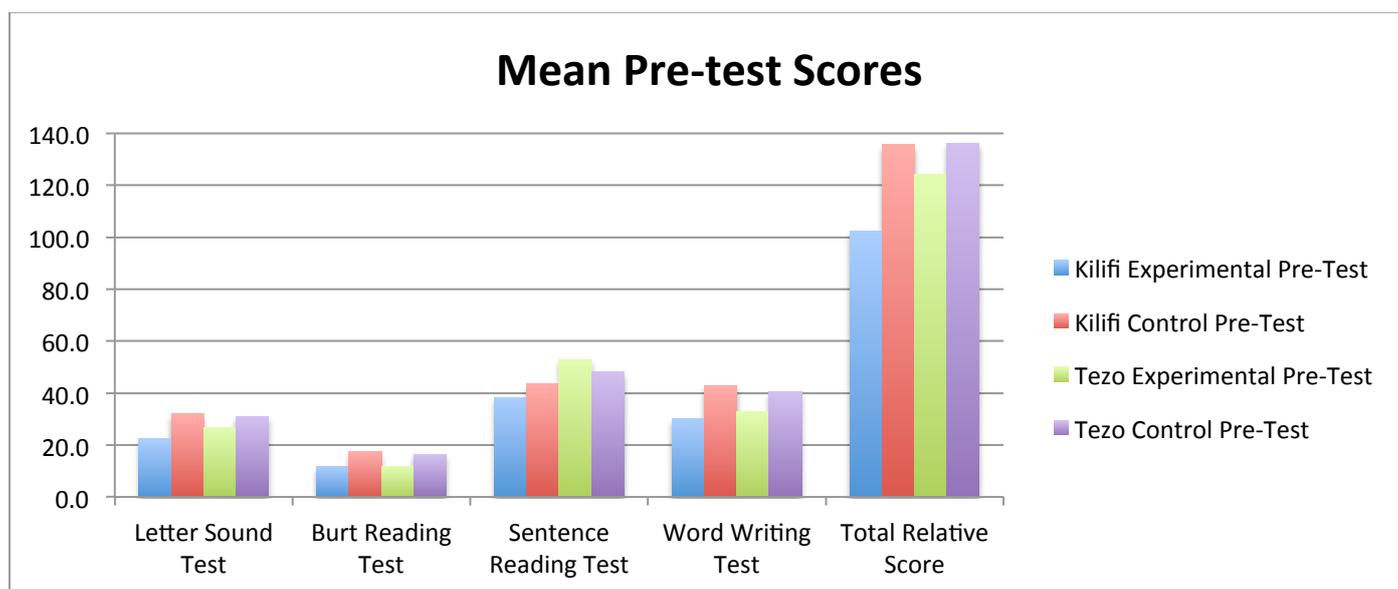


Figure 4.6: Literacy pre-test scores for each assessment

4.2.2 Mean score at end-line and mean score change

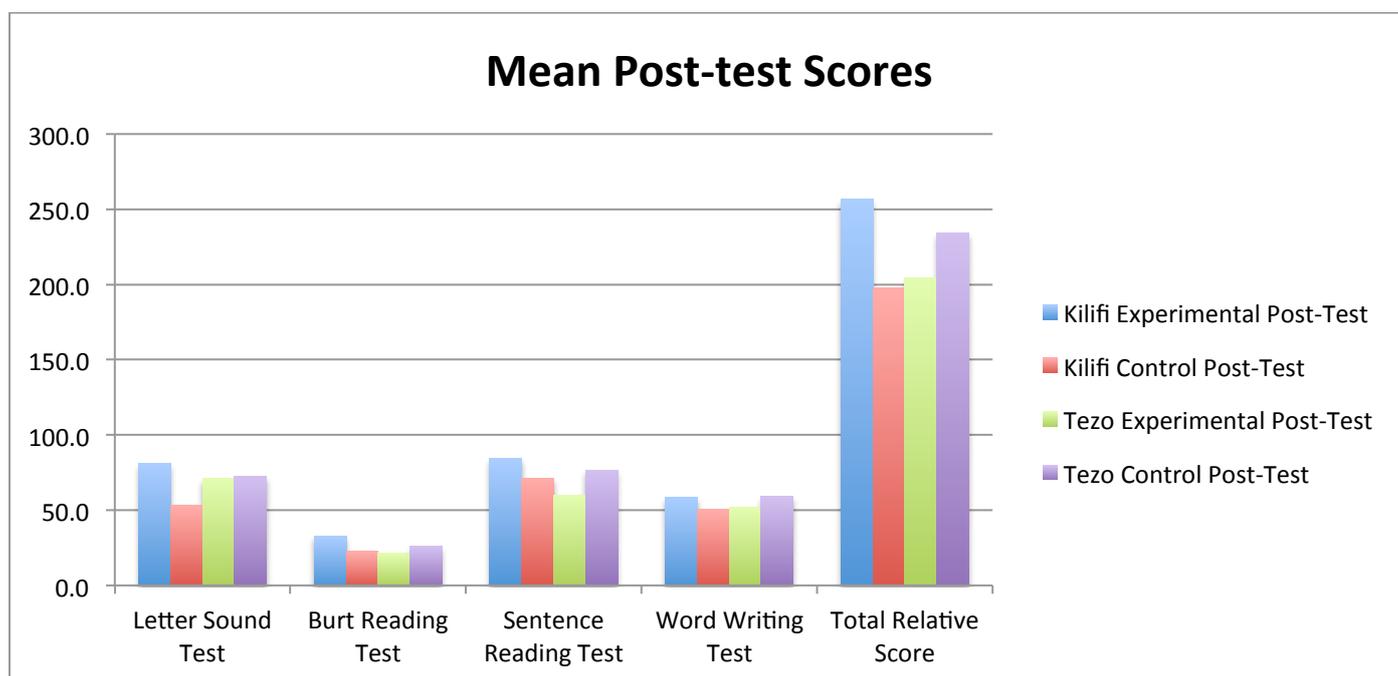


Figure 4.7: Literacy post-test scores for each assessment

Figures 4.7 and 4.8 illustrate that there has been an improvement in every aspect of the literacy abilities of those children exposed to the Jolly Phonics methodology. Both overall and in every category of literacy tested, the Kilifi experimental group scores increased significantly more than the Kilifi control group. In Tezo, there was an improvement in all literacy areas in the experimental schools, although this was lower

than would be expected for Jolly Phonics schools. It is worth noting that if compared to Kilifi control schools, the Tezo experimental schools show a higher rate of mean score change, with the

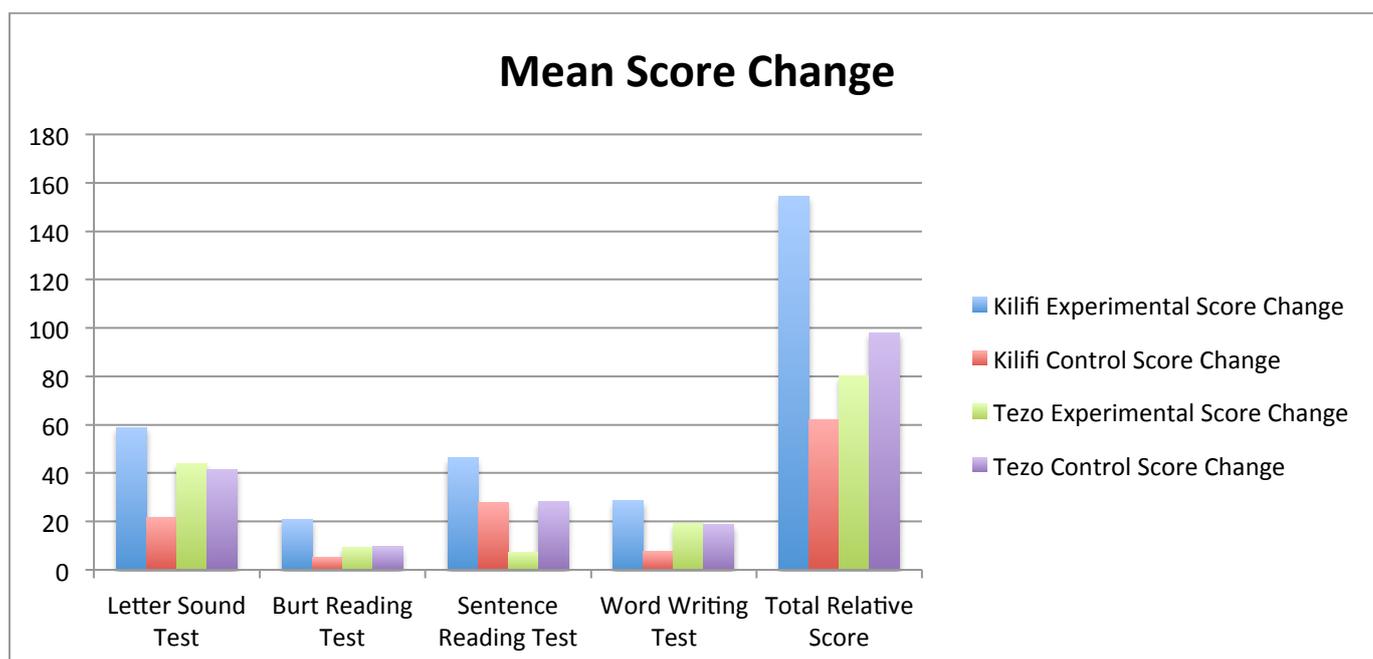


Figure 4.8: Mean change (relative scores) for each literacy assessment

exception of sentence reading. By looking at the individual school raw data scores in Table 4, we can identify that Tezo School 2 made very little progress compared to all other school groups. This was attributed to a number of factors, including large classes of over 100 pupils, and high rates of poor pupil attendance (74% compared to an average of 93% in other schools) in the most rural of the school settings. Having identified this outlier, **Tezo School 2 will be discounted in further analysis to give a more accurate overview of school group performance where pupils regularly accessed Jolly Phonics teaching.**

For the remainder of this section *raw scores* from each assessment will be presented in order to evaluate the actual change in ability for each skill.

Experimental Schools Raw Score Change: Disaggregated Data

| | Correct Letter Sounds (out of 41) | Correct words read (out of 110) | Correct Sentences read (scored out of 8) | Dictation: Correct words transcribed (out of 15) |
|---------------------------------|-----------------------------------|---------------------------------|--|--|
| Kilifi Schools | | | | |
| Kilifi School 1 Baseline | 15.11 | 15.07 | 3.76 | 6 |
| Kilifi School 1 End-line | 33.85 | 35.95 | 6.85 | 9.23 |
| Kilifi School 1 Variance | 18.74 | 20.88 | 3.09 | 3.23 |
| Kilifi School 2 Baseline | 9.48 | 14.8 | 3.76 | 5.68 |
| Kilifi School 2 End-line | 33.4 | 31.4 | 6.68 | 9.8 |
| Kilifi School 2 Variance | 23.92 | 16.6 | 2.92 | 4.12 |
| Kilifi School 3 Baseline | 6.28 | 10.04 | 2.92 | 3.44 |
| Kilifi School 3 End-line | 31.68 | 33.59 | 6.81 | 8.77 |
| Kilifi School 3 Variance | 25.4 | 23.55 | 3.89 | 5.33 |
| Kilifi School 4 Baseline | 8.32 | 10.72 | 2.56 | 3.64 |
| Kilifi School 4 End-line | 34.88 | 33.33 | 6.96 | 10.4 |

| | | | | |
|---------------------------------|--------------|--------------|--------------|-------------|
| Kilifi School 4 Variance | 26.56 | 22.61 | 4.4 | 6.76 |
| Kilifi School 5 Baseline | 6.4 | 8.77 | 2.09 | 3.72 |
| Kilifi School 5 End-line | 32.33 | 29.61 | 6.38 | 8.42 |
| Kilifi School 5 Variance | 25.93 | 20.84 | 4.29 | 4.7 |
| Tezo Schools | | | | |
| Tezo School 1 Baseline | 10.12 | 10.56 | 4.2 | 4.92 |
| Tezo School 1 End-line | 28.5 | 20.13 | 4.68 | 7.9 |
| Tezo School 1 Variance | 18.38 | 9.57 | 0.48 | 2.98 |
| Tezo School 2 Baseline | 7.24 | 4.08 | 4.12 | 2.6 |
| Tezo School 2 End-line | 11.6 | 5.2 | 1 | 3.73 |
| Tezo School 2 Variance | 4.36 | 1.12 | -3.12 | 1.13 |
| Tezo School 3 Baseline | 11.72 | 14.88 | 4.72 | 5.04 |
| Tezo School 3 End-line | 33.71 | 25.04 | 5.71 | 9.3 |
| Tezo School 3 Variance | 21.99 | 10.16 | 0.99 | 4.26 |
| Tezo School 4 Baseline | 10.9 | 13.85 | 3.35 | 5.05 |
| Tezo School 4 End-line | 35.16 | 24.22 | 5.88 | 8.66 |
| Tezo School 4 Variance | 24.26 | 10.37 | 2.53 | 3.61 |
| Tezo School 5 Baseline | 15.08 | 16.48 | 4.52 | 7 |
| Tezo School 5 End-line | 32.33 | 27.9 | 5.85 | 10.57 |
| Tezo School 5 Variance | 17.25 | 11.42 | 1.33 | 3.57 |

Table 4: Individual School Scores

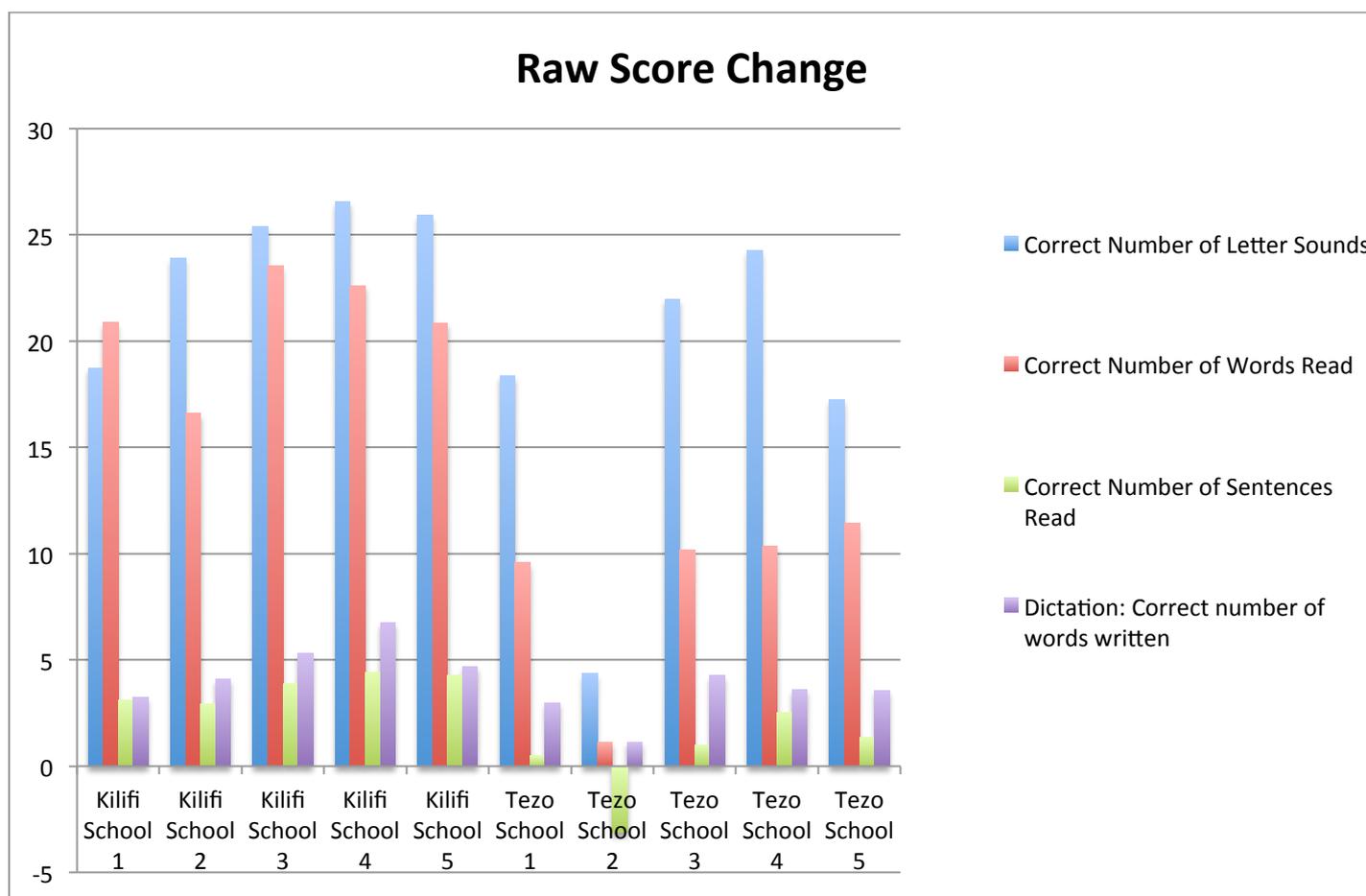


Figure 4.9: Mean change (raw scores) for each literacy assessment

Following discounting Tezo School 2 from the data, Table 5 shows the updated raw score data used to inform the next four sections of the paper.

| Group | Average Raw Scores | | | | |
|----------------------------------|-------------------------------|--|-------------------------|----------------------------------|-------------------------------|
| | Letter Sound Test (out of 41) | Burt Reading Test (words read, out of 110) | Reading Age (in months) | Sentence Reading Test (out of 8) | Word Writing Test (out of 15) |
| Kilifi Experimental Pre-Test | 9.16 | 11.98 | 58.60 | 3.04 | 4.52 |
| Kilifi Control Pre-Test | 13.08 | 17.32 | 68.64 | 3.48 | 6.46 |
| Kilifi Experimental Post-Test | 33.31 | 32.76 | 84.98 | 6.75 | 9.39 |
| Kilifi Control Post-Test | 21.97 | 22.50 | 76.21 | 5.71 | 8.10 |
| Experimental Score Change | 24.15 | 20.78 | 26.38 | 3.71 | 4.87 |
| Control Score Change | 8.89 | 5.18 | 7.57 | 2.23 | 1.64 |
| Tezo Experimental Pre-Test | 12.01 | 13.94 | 63.69 | 4.24 | 5.52 |
| Tezo Control Pre-Test | 12.65 | 16.55 | 66.81 | 3.85 | 6.10 |
| Tezo Experimental Post-Test | 32.28 | 24.28 | 77.17 | 5.51 | 9.12 |
| Tezo Control Post-Test | 29.65 | 26.00 | 78.45 | 6.12 | 9.47 |
| Experimental Score Change | 20.27 | 10.34 | 13.48 | 1.27 | 3.60 |
| Control Score Change | 17.00 | 9.45 | 11.64 | 2.27 | 3.37 |

Table 5: Average Raw Scores

4.3 Letter sounds

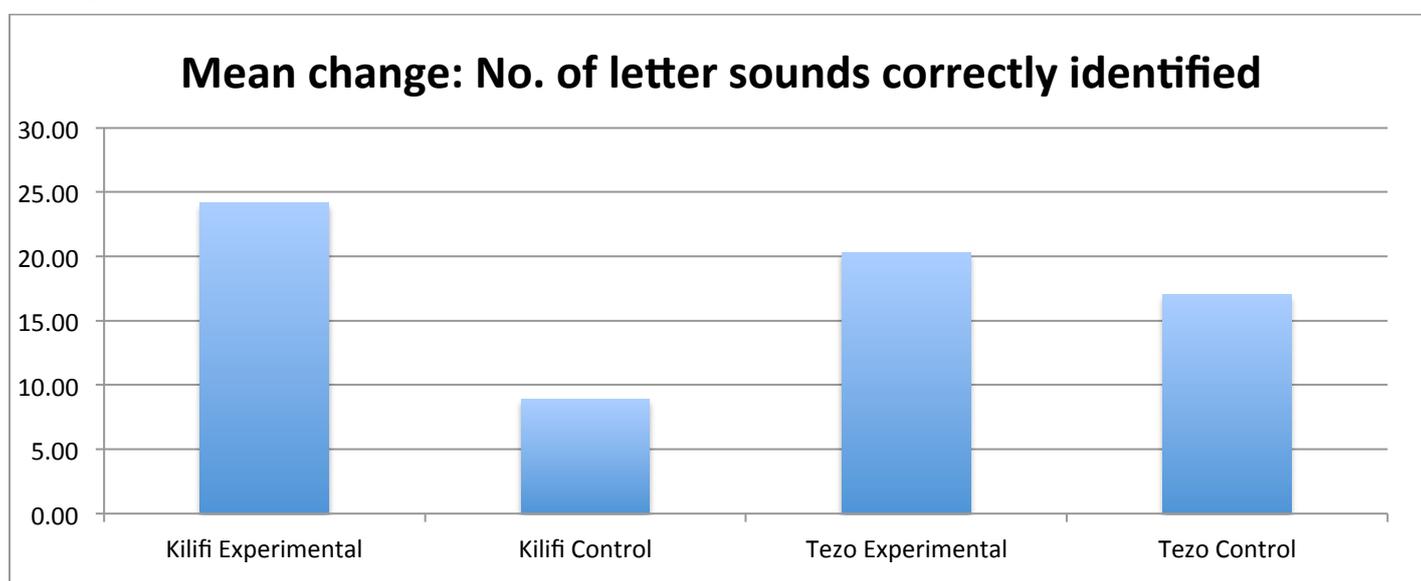


Figure 4.10: Mean change: No. of letter sounds correctly identified

In the letter sounds section of the literacy assessment, the number of letter sounds that pupils could correctly identify was assessed. The Jolly Phonics programme is based upon the 42 letter sounds in English, and for the purpose of monitoring the two “th” sounds were combined to give a maximum score of 41 for this section. Each pupil was given two attempts to correctly pronounce the letter sound



before moving onto the next one. On evaluation of the letter sounds assessment results the Kilifi control and experimental schools scored 13.08 and 9.16 letter sounds respectively at pre-test. However, at post-test, the experimental schools knew, on average, 11.34 letter sounds more than control schools. In Tezo, the results were not as pronounced, but experimental school pupils still knew on average 2.63 words more than control schools. However, it should be noted that in experimental schools, individual school progress in this area will differ depending on how far through the programme the teachers have reached. This analysis clearly shows that pupils in the experimental schools made better progress in phonic knowledge than the control schools.

4.4 Whole word reading

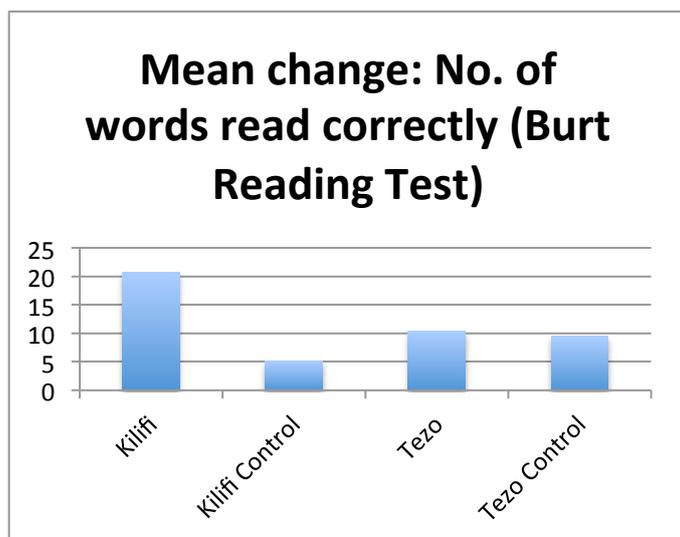


Figure 4.11: Mean change: No, of words read correctly

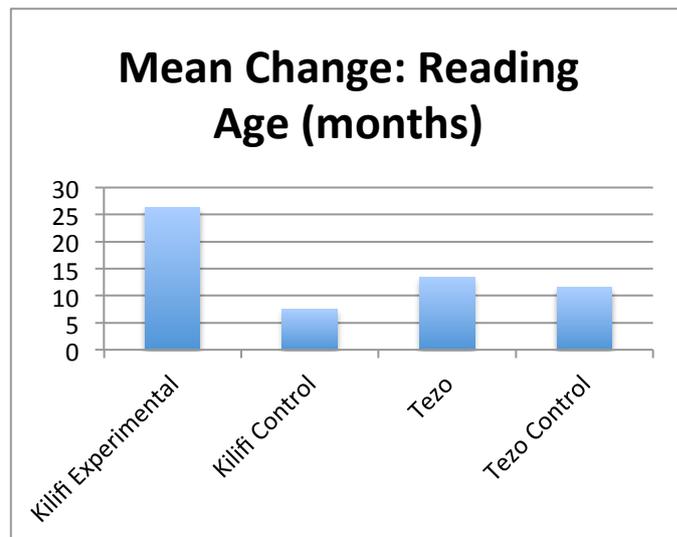


Figure 4.12: Mean change: Reading Age (months)

To assess the whole word reading ability of the pupils the Burt Reading Test was administered. In this test pupils are asked to read familiar words which get progressively more difficult. The test stops once the pupil has read ten consecutive words incorrectly. The number of words that the pupil has read correctly is then converted to obtain a standardised reading age. The Kilifi and Tezo experimental schools could read an average of 12 and 14 words at pre-test respectively, in contrast with the control schools which were closer to 16 and 17 words pre-test. At post-test, the average reading score of the Kilifi experimental group of schools had increased significantly more than the Kilifi control schools. As shown in Figure 4.11 the children in the experimental schools were able to read 21 more words post-pilot than they could at the beginning of the program, whereas the control schools improved by 5 words on this assessment. In Tezo, the experimental schools increased by 10 words, whilst the control schools increased by 9. In two of the remaining four experimental schools in Tezo, teaching of Jolly Phonics stopped in June due to a teacher transfer and long term sickness leave. This suggests that if teaching had continued, literacy levels would have increased further. When taking into account apparent higher literacy levels in this test for control schools, the experimental schools score change is a substantial improvement. Both Kilifi and Tezo experimental schools made considerable progress in reading age, improving by 23 and 13 months respectively. A great achievement over the 10-month pilot.

4.5 Sentence reading

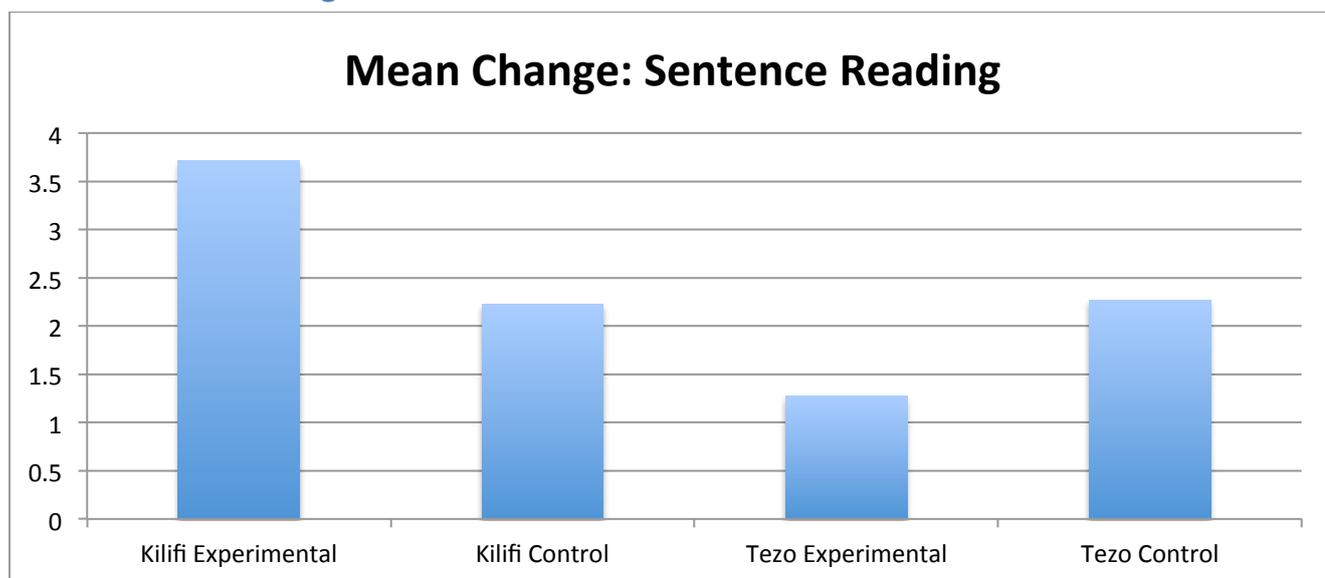


Figure 4.13: Mean change: Sentence Reading

To assess sentence reading ability, the pupils were asked to read four simple sentences. The pupils were awarded two marks if they read the sentence entirely correctly and one mark if they partially read it correctly, giving a maximum of 8 marks in total for the 4 sentences. The pupils in the control schools scored an average 3.48 (Kilifi) and 3.85 (Tezo) at pre-test for sentence-reading, compared with the average pre-test score of the experimental children of 3.04 (Kilifi) and 4.24 (Tezo). As Figure 4.13 shows, the average growth in score of the experimental school children in Kilifi was 3.71, meaning they could read almost two extra complete sentences in comparison to less than one pre-test, considerably higher than the Kilifi control group who increased their score by 2.23. In Tezo the results were more mixed, with an increase of 1.27 in experimental schools compared to 2.27 in control schools.

4.6 Dictation

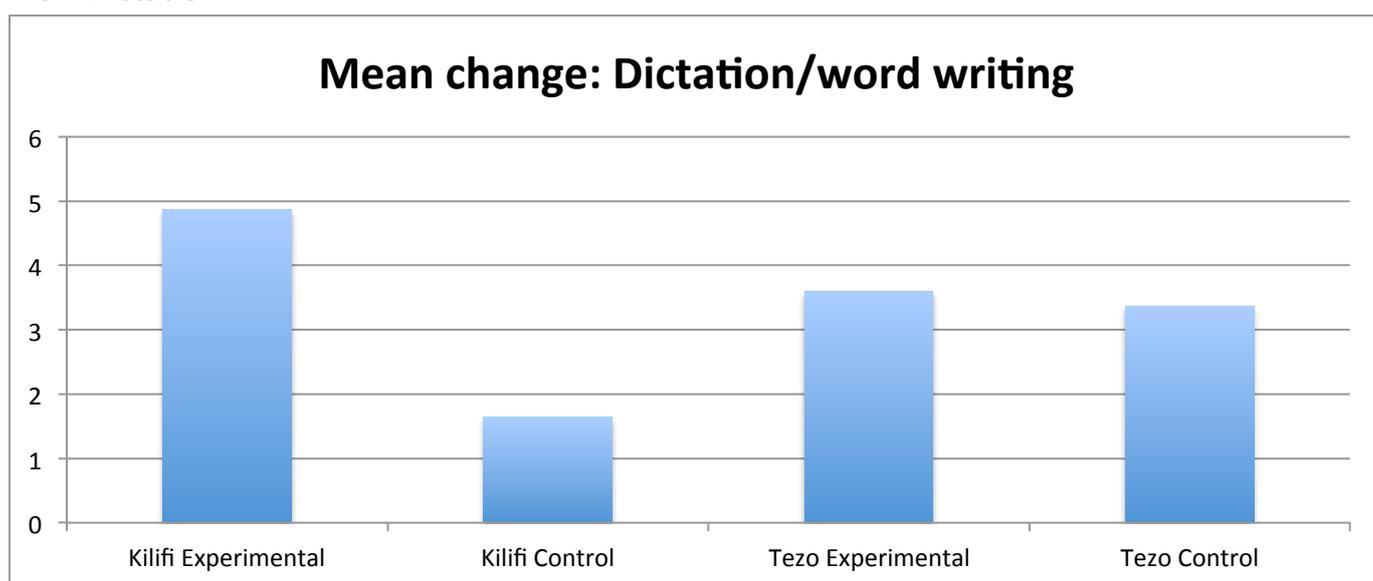


Figure 4.14: Mean change: Dictation/word writing

The pupils' word reading ability was assessed by asking the pupils to write 15 simple words, with one mark being awarded for each word written correctly. Demonstrated in figure 4.14, the average improvement for dictation and word writing in Kilifi was 3.23 points higher in the experimental schools than

the control schools, meaning they had improved to the extent of over three more words written than the control schools. The results in Tezo were not as significant, although the score change for experimental schools was still over 3 words from base line data.

In summary, the data in sections 4.3 – 4.6 show that Kilifi experimental schools were ahead of control groups by a wide margin in all four tests. In Tezo, the results are less clear-cut, even with the exclusion of experimental school 2. Tezo control groups performed consistently well, and experimental groups had mixed results.

4.7 Individual School Progress

| Kilifi Schools | Letter Sounds correct | Burt (words read) | Sentence Reading (correct sentences read) | Word Writing (correct words) | Total |
|---------------------------------|-----------------------|-------------------|---|------------------------------|---------------|
| Kilifi School 1 Baseline | 36.85 | 13.70 | 47.00 | 40.00 | 137.55 |
| Kilifi School 1 End-line | 82.56 | 32.68 | 85.63 | 61.53 | 262.40 |
| Kilifi School 1 Variance | 45.71 | 18.98 | 38.63 | 21.53 | 124.85 |
| Kilifi School 2 Baseline | 23.12 | 13.45 | 47.00 | 37.87 | 121.44 |
| Kilifi School 2 End-line | 81.46 | 28.55 | 83.50 | 65.33 | 258.84 |
| Kilifi School 2 Variance | 58.34 | 15.09 | 36.50 | 27.47 | 137.40 |
| Kilifi School 3 Baseline | 15.32 | 9.13 | 36.50 | 22.93 | 83.88 |
| Kilifi School 3 End-line | 77.27 | 30.54 | 85.13 | 58.47 | 251.40 |
| Kilifi School 3 Variance | 61.95 | 21.41 | 48.63 | 35.53 | 167.52 |
| Kilifi School 4 Baseline | 20.29 | 9.75 | 32.00 | 24.27 | 86.30 |
| Kilifi School 4 End-line | 85.07 | 30.30 | 87.00 | 69.33 | 271.71 |
| Kilifi School 4 Variance | 64.78 | 20.55 | 55.00 | 45.07 | 185.40 |
| Kilifi School 5 Baseline | 15.61 | 7.97 | 26.13 | 24.80 | 74.51 |
| Kilifi School 5 End-line | 78.85 | 26.92 | 79.75 | 56.13 | 241.66 |
| Kilifi School 5 Variance | 63.24 | 18.95 | 53.63 | 31.33 | 167.15 |
| Tezo School 1 Baseline | 24.68 | 9.60 | 52.50 | 32.80 | 119.58 |
| Tezo School 1 End-line | 69.51 | 18.30 | 58.50 | 52.67 | 198.98 |
| Tezo School 1 Variance | 44.83 | 8.70 | 6.00 | 19.87 | 79.40 |
| Tezo School 2 Baseline | 17.66 | 3.71 | 51.50 | 17.33 | 90.20 |
| Tezo School 2 End-line | 28.29 | 4.73 | 12.50 | 24.87 | 70.39 |
| Tezo School 2 Variance | 10.63 | 1.02 | -39.00 | 7.53 | -19.81 |
| Tezo School 3 Baseline | 28.59 | 13.53 | 59.00 | 33.60 | 134.71 |
| Tezo School 3 End-line | 82.22 | 22.76 | 71.38 | 62.00 | 238.36 |
| Tezo School 3 Variance | 53.63 | 9.24 | 12.38 | 28.40 | 103.65 |
| Tezo School 4 Baseline | 26.59 | 12.59 | 41.88 | 33.67 | 114.72 |
| Tezo School 4 End-line | 85.76 | 22.02 | 73.50 | 57.73 | 239.01 |
| Tezo School 4 Variance | 59.17 | 9.43 | 31.63 | 24.07 | 124.29 |
| Tezo School 5 Baseline | 36.78 | 14.98 | 56.50 | 46.67 | 154.93 |
| Tezo School 5 End-line | 78.85 | 25.36 | 73.13 | 70.47 | 247.81 |
| Tezo School 5 Variance | 42.07 | 10.38 | 16.63 | 23.80 | 92.88 |

Table 6: Average Relative Scores (Disaggregated)



Table 6 shows relative scores for each experimental school. Three schools stand out as achieving high overall relative scores. Kilifi School 4 achieved a change of 185.40. This school had split the Primary 1 class into two streams with two teachers, thus reducing class size, which is conducive to positive learning outcomes for Jolly Phonics programmes. The teachers showed confidence in teaching Jolly Phonics, and it was reported that using Jolly Phonics to enhance the Tusome teaching programme yielded positive results. At mid-line monitoring in June, teachers in all schools visited bar one said that Jolly Phonics has improved their teaching of the Tusome programme.

Kilifi School 5 also showed good progress, achieving a relative score change of 167.15. This is particularly exceptional when considering there was a high number of pupils repeating the year (out of the sample 3 were aged between 12-15 years) and a high number of pupils were labelled 'slow learners' at the baseline assessment. These pupils have made enormous personal progress. The teacher quickly implemented the Jolly Phonics teaching programme and showed confidence during monitoring.

Kilifi School 3 also showed good progress with a relative score change of 167.52. As with Kilifi School 4, the Primary 1 class was split between two teachers. Both teachers engaged with the programme and attended the drop-in clinic refresher session in September to maintain their skillsets. Again, this school reported Jolly Phonics as being a positive addition to the Tusome programme.

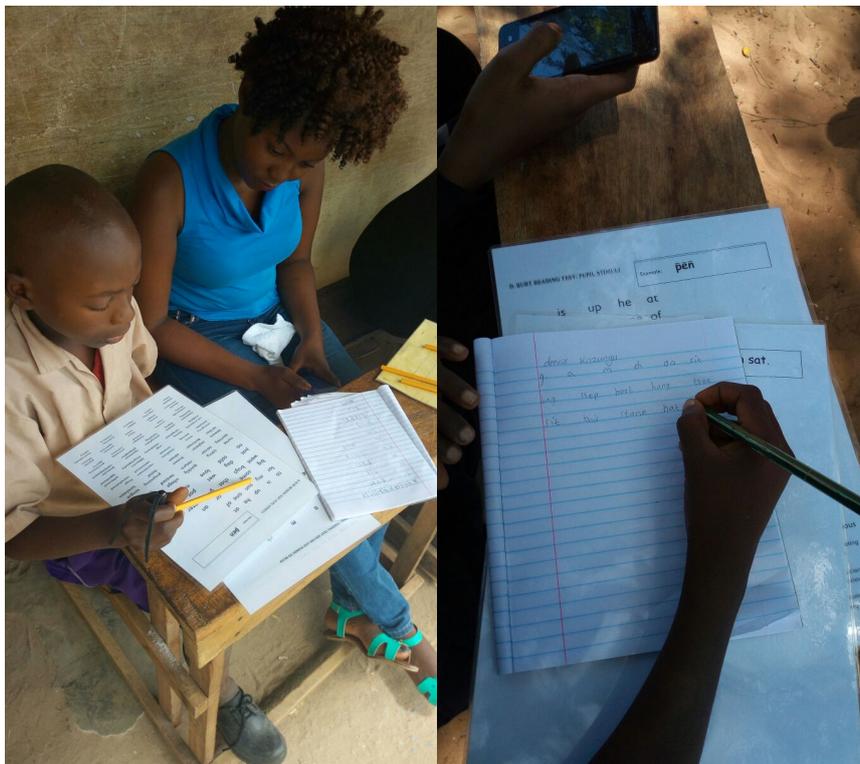
In Tezo, the highest scoring school was Tezo School 4, despite the Jolly Phonics trained teacher being absent for two months of teaching due to ill health. During this time no Jolly Phonics was taught. Despite this setback, the teacher was motivated and still made good progress through the programme. This highlights that teacher engagement and enthusiasm is crucial to ensuring positive learning outcomes for Jolly Phonics pupils.

Despite a relative mean score change of 92.88, Tezo School 5 made good progress in the time Jolly Phonics was delivered. The monitoring team identified the teacher as being highly competent, and the whole Jolly Phonics programme had been implemented by June 2017. However, the teacher was then transferred out of Primary 1, and did not deliver any further Jolly Phonics lessons to the Primary 1 pupils again until September. The monitoring team suspect that if the teacher had been allowed to remain in the Primary 1 class that the test results would have been exceptionally high. This highlights the importance of ensuring that teachers are not transferred between schools or classes, as the Jolly Phonics programme is designed to be delivered in its entirety.

As highlighted earlier in the paper, Tezo School 2 has exhibited the least encouraging results, with a relative mean score change of -19.81, in effect meaning that literacy levels were lower at the End-line assessment than at the baseline. This school was the most rural of the schools taking part in the pilot, and also had poor attendance. This attendance record can go some way in explaining why the results were poor, with a large amount of absences making data collection at End-line assessment challenging. This school also reported during monitoring in June that pupil books were not being used, which would have a detrimental effect on the ability of students to reinforce their learning.

During monitoring visits in June, the monitoring team felt that Tezo schools had implemented the Jolly Phonics programme to a higher standard than the Kilifi schools, despite Tezo Area's more remote location. Although this is not necessarily reflected in the end line data and mean change scores, it is important to highlight how teacher transfer and poor attendance can disrupt Jolly Phonics teaching at any stage in the programme and the effect it can have on the ability of pupils to develop their literacy skills.





Monitoring in Tezo and Kilifi

5 Consideration of Other Influencing Factors

5.1 Factors Contributing to the Success of the Pilot

There were a number of factors that contributed to the success of this pilot and the improvements in the pupil's literacy outcomes. These factors included:

- **Governmental Support**
- **Detailed initial Jolly Phonics Training:** the 3 days of initial training for the teachers in Jolly Phonics by expert Jolly Phonics trainer Sian Summers Issa provided a thorough introduction to the programme and how to teach it. Specific additional actions were added to the Jolly Phonics programme to support teachers and children in differentiating between Kiswahili and English. Culturally relevant example stories, songs and images were provided where necessary, which ensured pupils' maximum engagement in the learning experience. A minimum of 3 days training has been found to be most effective from the programme being used elsewhere, and having trainers familiar with the Kenyan education system and Kiswahili contributes to making the programme both contextually and culturally relevant.
- **Regular Teaching of Jolly Phonics:** it is recommended that Jolly Phonics should be taught at least 3 times a week, and ideally daily. In this pilot, the schools that showed the most progress had teachers that taught Jolly Phonics on a regular basis, which allowed the pupils to make good progress in their reading and writing ability.
- **Refresher Training:** The drop-in refresher session in September proved to be valuable for attending teachers. Regular refresher training and mentoring allows teachers to continue to consolidate their skillset and allows trainers to address any problems on a regular basis.
- **WhatsApp support groups and Jolly Phonics app for teachers:** those with smartphones were able to access support on the WhatsApp Jolly Phonics groups and also use the Jolly Phonics app. Those with the app reported being able to check pronunciation was very valuable.

- **Head Teacher Support:** 9/10 Head Teachers attended day 1 on the Jolly Phonics training. The Head Teachers who stayed regularly involved with the programme being implemented in their school and supported teachers to timetable Jolly Phonics achieved higher results.

5.2 Challenges Experienced in the Pilot

- **Overcrowded classrooms and large class sizes:** In at least four of the experimental schools classes held upwards of 80 pupils in one stream. Although this problem is often unavoidable in this context, the programme must be sensitive to the number of children teachers are responsible for and provide support and guidance to the teachers in using the Jolly Phonics programme with such large pupil groups. For example the trainer could model teaching a Jolly Phonics lesson to a large class as part of the training and teachers given guidance and suggestions on how to use the materials for large classes. Teachers with large classes commented that Jolly Phonics was so multi sensory and fun that they achieved better class control and class engagement in the Jolly Phonics sessions than they did at any other lesson/subject.
- **Attendance rates:** Schools with lower attendance rates, such as the Tezo Experimental School 4, are likely to return lower test scores. As Jolly Phonics is ideally taught every day, or several times per week, without regular attendance, pupils are likely to be left behind quickly. Again, although this problem is unavoidable to some extent, the programme should be sensitive to these circumstances, ensuring regular revision sessions and pupil catch up sessions where appropriate.
- **Teacher transfer:** Due to the nature of the Jolly Phonics programme, every effort needs to be made to ensure teachers are not transferred between classes or schools during the course of the teaching. The teaching method is specific and designed to be both sequential and holistic in teaching, and requires teacher training to ensure the programme is delivered effectively. Transfers disrupt this process.

6 Conclusions

The aim of this project was to pilot the Jolly Phonics programme in the teaching of reading and writing of English in government primary schools in Kilifi County Kenya and assess its impact on early grade reading outcomes. Through this evaluation it has been determined that the synthetic phonics approach of teaching reading and writing of English, and specifically the Jolly Phonics programme, can lead to greater progress in the pupils' reading and writing ability in English than those pupils not taught using the programme, where the processes of the programme are carried out correctly.

In the end-line assessments, assessors found that pupils who had been regularly using Jolly Phonics were more confident and quicker at reading and recognising sounds. They made more plausible attempts at deciphering unfamiliar words and made fewer spelling mistakes on words containing the sounds they had learnt. The pupils who at base line had shown potential in reading, now armed with tools to help them blend and segment have made large improvements. The findings from this study show that if fidelity to the Jolly Phonics program is shown, pupils are able to quickly develop their reading skills and find enjoyment in learning. The similarity between English and Kiswahili sounds also makes Jolly Phonics a very versatile programme, which will benefit all who are exposed to it.

The Jolly Phonics programme was found to have particular benefit for older students who had repeated primary 1 classes several times, and who in some circumstances had been labelled 'slow learners'. In one instance an 11 year old experimental Tezo School 4 pupil went from not being able to read at all to a reading age of 6 years 11 months over the course of the pilot.



As the analysis in this report shows, in many cases the experimental schools outperformed control schools on all the four literacy skills assessed, suggesting that the Jolly Phonics method provides a more effective way of teaching these key skills than existing methods being used. For example pupils taught using Jolly Phonics in Kilifi on average increased their reading age by 26 months after only using the programme for 10 months. This is compared to Kilifi control pupils not taught using the programme making on average a 7.57 month improvement in their reading age over the same period. Such a significant improvement in reading age demonstrates the impact that the Jolly Phonics teaching has on overall reading skills and not just letter sound knowledge.

In 9 out of 10 schools, teachers found that Jolly Phonics aided teaching of the Tusome programme, and therefore we can ascertain that the two programmes compliment each other in terms of improving teaching ability for literacy skills. This can be an area for further research in the future. Teachers reported that they used the actions to enhance learning letter sounds in Tusome and found the Jolly Phonics concept of tricky words very useful to identify words in Tusome which could be blended to read or needed to be learnt using whole word recognition. Tusome in comparison to Jolly Phonics does not follow a systematic progression in learning letter sounds. Teachers who completed Jolly Phonics program quickly found they could overcome this challenge in Tusome once their class knew the 42 basic English sounds as they could then apply existing phonetic knowledge to new words encounter in the daily Tusome lessons . Teachers used their knowledge form the Jolly Phonics training about alternative spellings for long vowels to enhance the teaching methodology in Tusome when these sounds were encountered.

7 Recommendations

This pilot study has shown that the Jolly Phonics programme can provide a highly effective way of teaching children to read and write and that it can cause an increase in the literacy rates for all groups of children when conditions for learning (such as high attendance and teacher class fidelity) are apparent. Given the significantly better progress the children taught using Jolly Phonics made than those not taught (or taught effectively) using the programme, it is therefore strongly recommended that the Ministry of Education extend this programme to all government primary schools in Kenya. Based on the strong evidence from this pilot study, the implementation of the programme nationwide would results in a significant improvement in the literacy rate in Kenya.

In addition, given the high percentage of pupils receiving pre-primary school education, it is recommended that basic Jolly Phonics training should take place prior to children attending primary school. This would ensure that pupils will not have to 'un-learn' incorrect sounds taught at ECD level. Although not formally monitored kindergarten teachers from all experimental schools attended the JP training and at monitoring visits assessors visited the kindergarten classes and found teachers to be using the program and excitedly reporting that their young children were now blending and reading simple words.

This pilot has also highlighted some challenges particularly around the need for ongoing training, mentoring and support for the teachers using this programme as well regular monitoring. It is therefore recommended that effective and high-quality ongoing training and mentoring, as well as rigorous and regular monitoring, are implemented as core parts of the expansion of this programme.



8 Appendices

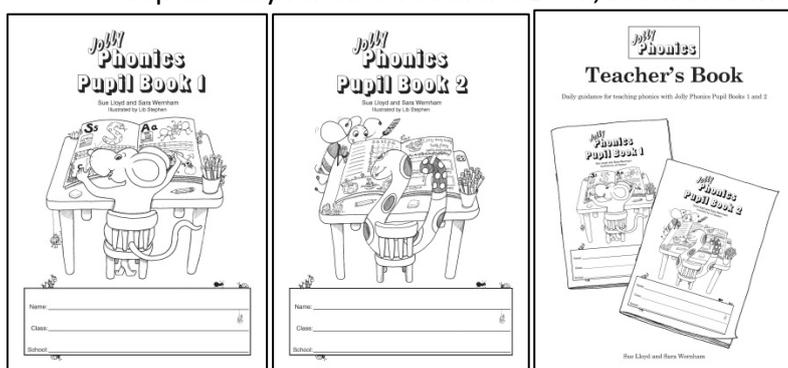
8.1 Appendix A: Contents of a Jolly Phonics Starter Kit

- The Phonics Handbook
- Jolly Phonics DVD
- Jolly Phonics Wall Frieze
- Jolly Phonics Letter Sound Strips
- Finger Phonics Big Books 1-7
- Jolly Phonics Word Book
- Jolly Phonics Cards
- Jolly Phonics Alternative Spelling and Alphabet Posters
- Jolly Phonics Tricky Word Wall Flowers
- Jolly Songs
- Jolly Readers Level 1 – Complete Set of 18 different storybooks
- Jolly Readers Level 2 – Complete Set of 18 different storybooks



In addition to the Jolly Phonics Starter Kit Extended, each school was provided with:

- Jolly Phonics Pupil Book 1, black-and-white, provided for each student
- Jolly Phonics Pupil Book 2, black-and-white, provided for each student
- 4 copies Jolly Phonics Teacher's Book, black-and-white



9 Appendix B: Raw Data

9.1 Profile of Respondents

| Variable | Category | Kilifi | | | | Tezo | | | |
|-------------------------|-----------|------------------------|-------------------|----------------|-----------|------------------------|-------------------|----------------|-----------|
| | | Experimental Frequency | Control Frequency | Experimental % | Control % | Experimental Frequency | Control Frequency | Experimental % | Control % |
| English Spoken at Home | Yes | 13 | 7 | 10.7% | 14.3% | 16 | 6 | 13.2% | 12.0% |
| | No | 109 | 42 | 89.3% | 85.7% | 105 | 44 | 86.8% | 88.0% |
| Main Home Language | English | 1 | 1 | 0.8% | 2.0% | 0 | 0 | 0.0% | 0.0% |
| | Kibaluhya | 1 | 0 | 0.8% | 0.0% | 0 | 0 | 0.0% | 0.0% |
| | Kiborana | 1 | 0 | 0.8% | 0.0% | 0 | 0 | 0.0% | 0.0% |
| | Kichonyi | 6 | 3 | 5.0% | 6.1% | 4 | 1 | 3.4% | 2.0% |
| | Kigiriama | 56 | 20 | 46.3% | 40.8% | 87 | 32 | 73.1% | 64.0% |
| | Kikamba | 2 | 0 | 1.7% | 0.0% | 0 | 0 | 0.0% | 0.0% |
| | Kikambe | 0 | 1 | 0.0% | 2.0% | 1 | 0 | 0.8% | 0.0% |
| | Kikauma | 6 | 0 | 5.0% | 0.0% | 1 | 0 | 0.8% | 0.0% |
| | Kiarabu | 2 | 0 | 1.7% | 0.0% | 1 | 0 | 0.8% | 0.0% |
| | Kimpemba | 1 | 0 | 0.8% | 0.0% | 0 | 0 | 0.0% | 0.0% |
| | Kipemba | 0 | 1 | 0.0% | 2.0% | 0 | 0 | 0.0% | 0.0% |
| | Kiswahili | 43 | 21 | 35.5% | 42.9% | 25 | 17 | 21.0% | 34.0% |
| | Kiduruma | 1 | 1 | 0.8% | 2.0% | 0 | 0 | 0.0% | 0.0% |
| Attended Nursery | Yes | 117 | 47 | 95.1% | 95.9% | 114 | 48 | 95.8% | 98.0% |
| | No | 6 | 3 | 4.9% | 6.1% | 6 | 1 | 5.0% | 2.0% |
| Radio | Yes | 56 | 30 | 45.5% | 61.2% | 61 | 35 | 51.3% | 71.4% |
| | No | 67 | 19 | 54.5% | 38.8% | 58 | 15 | 48.7% | 30.6% |
| TV | Yes | 33 | 19 | 26.8% | 38.8% | 27 | 17 | 22.7% | 34.7% |
| | No | 90 | 30 | 73.2% | 61.2% | 92 | 33 | 77.3% | 67.3% |
| Story Books | Yes | 25 | 2 | 20.3% | 4.1% | 53 | 19 | 44.5% | 38.8% |
| | No | 98 | 47 | 79.7% | 95.9% | 66 | 31 | 55.5% | 63.3% |
| Other Reading Materials | Yes | 6 | 2 | 4.9% | 4.1% | 16 | 5 | 13.4% | 10.2% |
| | No | 117 | 47 | 95.1% | 95.9% | 103 | 45 | 86.6% | 91.8% |

9.2 Raw Score Results

| Group | Average Raw Scores | | | | |
|----------------------------------|-------------------------------|--|-------------------------|----------------------------------|-------------------------------|
| | Letter Sound Test (out of 41) | Burt Reading Test (words read, out of 110) | Reading Age (in months) | Sentence Reading Test (out of 8) | Word Writing Test (out of 15) |
| Kilifi Experimental Pre-Test | 9.16 | 11.98 | 58.60 | 3.04 | 4.52 |
| Kilifi Control Pre-Test | 13.08 | 17.32 | 68.64 | 3.48 | 6.46 |
| Kilifi Experimental Post-Test | 33.31 | 32.76 | 84.98 | 6.75 | 9.39 |
| Kilifi Control Post-Test | 21.97 | 22.50 | 76.21 | 5.71 | 8.10 |
| Experimental Score Change | 24.15 | 20.78 | 26.38 | 3.71 | 4.87 |
| Control Score Change | 8.89 | 5.18 | 7.57 | 2.23 | 1.64 |
| | | | | | |
| Tezo Experimental Pre-Test | 12.01 | 13.94 | 63.69 | 4.24 | 5.52 |
| Tezo Control Pre-Test | 12.65 | 16.55 | 66.81 | 3.85 | 6.10 |
| Tezo Experimental Post-Test | 32.28 | 24.28 | 77.17 | 5.51 | 9.12 |
| Tezo Control Post-Test | 29.65 | 26.00 | 78.45 | 6.12 | 9.47 |
| Experimental Score Change | 20.27 | 10.34 | 13.48 | 1.27 | 3.60 |
| Control Score Change | 17.00 | 9.45 | 11.64 | 2.27 | 3.37 |

9.3 Relative Score Results

| Group | Average Relative Scores (out of 100) | | | | Total Relative Score (out of 400) |
|----------------------------------|--------------------------------------|-------------------|-----------------------|-------------------|-----------------------------------|
| | Letter Sound Test | Burt Reading Test | Sentence Reading Test | Word Writing Test | |
| Kilifi Experimental Pre-Test | 22.3 | 11.9 | 38.1 | 30.1 | 102.4 |
| Kilifi Control Pre-Test | 31.9 | 17.3 | 43.5 | 43.0 | 135.7 |
| Kilifi Experimental Post-Test | 81.2 | 32.7 | 84.3 | 58.7 | 256.9 |
| Kilifi Control Post-Test | 53.5 | 22.5 | 71.3 | 50.6 | 197.9 |
| Experimental Score Change | 58.9 | 20.8 | 46.2 | 28.6 | 154.5 |
| Control Score Change | 21.6 | 5.2 | 27.8 | 7.6 | 62.2 |
| | | | | | |
| Tezo Experimental Pre-Test | 26.8 | 11.9 | 52.7 | 32.7 | 124.1 |
| Tezo Control Pre-Test | 30.8 | 16.5 | 48.2 | 40.6 | 136.1 |
| Tezo Experimental Post-Test | 70.9 | 21.3 | 60.1 | 51.8 | 204.1 |
| Tezo Control Post-Test | 72.3 | 26.0 | 76.5 | 59.2 | 234.0 |
| Experimental Score Change | 44.1 | 9.4 | 7.4 | 19.1 | 80.0 |
| Control Score Change | 41.5 | 9.5 | 28.3 | 18.6 | 97.9 |

9.4 Raw Score Results (Disaggregated)

| | Correct Letter Sounds (out of 41) | Correct words read (out of 110) | Correct Sentences read (scored out of 8) | Dictation: Correct words transcribed (out of 15) |
|---------------------------------|--------------------------------------|------------------------------------|---|--|
| Kilifi Schools | | | | |
| Kilifi School 1 Baseline | 15.11 | 15.07 | 3.76 | 6 |
| Kilifi School 1 End-line | 33.85 | 35.95 | 6.85 | 9.23 |
| Kilifi School 1 Variance | 18.74 | 20.88 | 3.09 | 3.23 |
| Kilifi School 2 Baseline | 9.48 | 14.8 | 3.76 | 5.68 |
| Kilifi School 2 End-line | 33.4 | 31.4 | 6.68 | 9.8 |
| Kilifi School 2 Variance | 23.92 | 16.6 | 2.92 | 4.12 |
| Kilifi School 3 Baseline | 6.28 | 10.04 | 2.92 | 3.44 |
| Kilifi School 3 End-line | 31.68 | 33.59 | 6.81 | 8.77 |
| Kilifi School 3 Variance | 25.4 | 23.55 | 3.89 | 5.33 |
| Kilifi School 4 Baseline | 8.32 | 10.72 | 2.56 | 3.64 |
| Kilifi School 4 End-line | 34.88 | 33.33 | 6.96 | 10.4 |
| Kilifi School 4 Variance | 26.56 | 22.61 | 4.4 | 6.76 |
| Kilifi School 5 Baseline | 6.4 | 8.77 | 2.09 | 3.72 |
| Kilifi School 5 End-line | 32.33 | 29.61 | 6.38 | 8.42 |
| Kilifi School 5 Variance | 25.93 | 20.84 | 4.29 | 4.7 |
| Tezo Schools | | | | |
| Tezo School 1 Baseline | 10.12 | 10.56 | 4.2 | 4.92 |
| Tezo School 1 End-line | 28.5 | 20.13 | 4.68 | 7.9 |
| Tezo School 1 Variance | 18.38 | 9.57 | 0.48 | 2.98 |
| Tezo School 2 Baseline | 7.24 | 4.08 | 4.12 | 2.6 |
| Tezo School 2 End-line | 11.6 | 5.2 | 1 | 3.73 |
| Tezo School 2 Variance | 4.36 | 1.12 | -3.12 | 1.13 |
| Tezo School 3 Baseline | 11.72 | 14.88 | 4.72 | 5.04 |
| Tezo School 3 End-line | 33.71 | 25.04 | 5.71 | 9.3 |
| Tezo School 3 Variance | 21.99 | 10.16 | 0.99 | 4.26 |
| Tezo School 4 Baseline | 10.9 | 13.85 | 3.35 | 5.05 |
| Tezo School 4 End-line | 35.16 | 24.22 | 5.88 | 8.66 |
| Tezo School 4 Variance | 24.26 | 10.37 | 2.53 | 3.61 |
| Tezo School 5 Baseline | 15.08 | 16.48 | 4.52 | 7 |
| Tezo School 5 End-line | 32.33 | 27.9 | 5.85 | 10.57 |
| Tezo School 5 Variance | 17.25 | 11.42 | 1.33 | 3.57 |

9.5 Relative Score Results (Disaggregated) with Score Change

| Kilifi Schools | Letter Sounds correct | Burt (words read) | Sentence Reading (correct sentences read) | Word Writing (correct words) | Total |
|---------------------------------|-----------------------|-------------------|---|------------------------------|---------------|
| Kilifi School 1 Baseline | 36.85 | 13.70 | 47.00 | 40.00 | 137.55 |
| Kilifi School 1 End-line | 82.56 | 32.68 | 85.63 | 61.53 | 262.40 |
| Kilifi School 1 Variance | 45.71 | 18.98 | 38.63 | 21.53 | 124.85 |
| Kilifi School 2 Baseline | 23.12 | 13.45 | 47.00 | 37.87 | 121.44 |
| Kilifi School 2 End-line | 81.46 | 28.55 | 83.50 | 65.33 | 258.84 |
| Kilifi School 2 Variance | 58.34 | 15.09 | 36.50 | 27.47 | 137.40 |
| Kilifi School 3 Baseline | 15.32 | 9.13 | 36.50 | 22.93 | 83.88 |
| Kilifi School 3 End-line | 77.27 | 30.54 | 85.13 | 58.47 | 251.40 |
| Kilifi School 3 Variance | 61.95 | 21.41 | 48.63 | 35.53 | 167.52 |
| Kilifi School 4 Baseline | 20.29 | 9.75 | 32.00 | 24.27 | 86.30 |
| Kilifi School 4 End-line | 85.07 | 30.30 | 87.00 | 69.33 | 271.71 |
| Kilifi School 4 Variance | 64.78 | 20.55 | 55.00 | 45.07 | 185.40 |
| Kilifi School 5 Baseline | 15.61 | 7.97 | 26.13 | 24.80 | 74.51 |
| Kilifi School 5 End-line | 78.85 | 26.92 | 79.75 | 56.13 | 241.66 |
| Kilifi School 5 Variance | 63.24 | 18.95 | 53.63 | 31.33 | 167.15 |
| Tezo School 1 Baseline | 24.68 | 9.60 | 52.50 | 32.80 | 119.58 |
| Tezo School 1 End-line | 69.51 | 18.30 | 58.50 | 52.67 | 198.98 |
| Tezo School 1 Variance | 44.83 | 8.70 | 6.00 | 19.87 | 79.40 |
| Tezo School 2 Baseline | 17.66 | 3.71 | 51.50 | 17.33 | 90.20 |
| Tezo School 2 End-line | 28.29 | 4.73 | 12.50 | 24.87 | 70.39 |
| Tezo School 2 Variance | 10.63 | 1.02 | -39.00 | 7.53 | -19.81 |
| Tezo School 3 Baseline | 28.59 | 13.53 | 59.00 | 33.60 | 134.71 |
| Tezo School 3 End-line | 82.22 | 22.76 | 71.38 | 62.00 | 238.36 |
| Tezo School 3 Variance | 53.63 | 9.24 | 12.38 | 28.40 | 103.65 |
| Tezo School 4 Baseline | 26.59 | 12.59 | 41.88 | 33.67 | 114.72 |
| Tezo School 4 End-line | 85.76 | 22.02 | 73.50 | 57.73 | 239.01 |
| Tezo School 4 Variance | 59.17 | 9.43 | 31.63 | 24.07 | 124.29 |
| Tezo School 5 Baseline | 36.78 | 14.98 | 56.50 | 46.67 | 154.93 |
| Tezo School 5 End-line | 78.85 | 25.36 | 73.13 | 70.47 | 247.81 |
| Tezo School 5 Variance | 42.07 | 10.38 | 16.63 | 23.80 | 92.88 |