AN EVALUATION REPORT OF THE JOLLY PHONICS PILOT IN COMMUNITY AND GOVERNMENT PRIMARY SCHOOLS IN LUSAKA AND COPPERBELT PROVINCES OF ZAMBIA

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EXECUTIVE SUMMARY

Rationale and Methodology

In March 2016, Mr Christopher Jolly owner and founder of Jolly Learning Limited, the publishers of Jolly Phonics literacy programme, made an offer to the Zambian government to provide free teaching and learning materials of this programme as a possible solution to the low literacy levels among primary school children. This was in response to the poor results of one of the national early grade reading assessments (EGRA) presented at a stakeholder's meeting at the Ministry of General Education headquarters that year which Mr Jolly's happened to attend. He made his offer as a possible solution to lifting the low literacy levels in the country. The original proposal made by Mr Jolly on behalf of Jolly Futures, the philanthropic arm of Jolly Learning Limited, included the following:

1. That the teaching and learning materials be piloted in six schools to assess their efficacy and that the pilot be subjected to an independent academic evaluation.
2. That Jolly Futures would provide to the pilot schools the following:
    - Free Pupil books 1 and 2
    - Free Teacher's Books
    - Free Jolly Starter kits and other classroom materials (see appendix A for the full details)
    - A trainer whose expenses would be borne by Jolly Futures
    - Deliver the materials to a central address in Zambia
3. That the Ministry of General Education would meet the local cost of transporting materials to the pilot schools, the costs of teachers and other personnel to be involved in the training workshops including the cost of the venue and that of the evaluation study.
4. In the event that the programme is adopted, Jolly Futures would roll it out to all the primary schools in the country. In subsequent years, the programme would be sustained by allowing the Ministry of General Education to reprint the Jolly Phonics Pupil and Teacher's Books without any royalty payment to Jolly Learning.

When the Permanent Secretary gave permission for the pilot to be conducted, further discussions between Jolly Futures led to an expansion of the number of participating schools

from 6 to 22. Two provinces were selected for the pilot: Lusaka and the Copperbelt. In other countries that have adopted Jolly Phonics, it is usually used as an initial literacy course in the first year. In Zambia, this had to be altered to conform to the current language and literacy policies. Initial literacy is taught in the regional Zambian languages and English literacy is introduced in Grade 3. Therefore, the pilot was to be done in grade 3.

The evaluation study was to be done by members of the Department of Language and Social Sciences Education of the School of Education at the University of Zambia. The lead researcher was present at the stakeholders' meeting when the above offer was made and since it originally was supposed to piloted in Lusaka, he offered to do the evaluation. However, when the scope of the pilot was expanded to 22 schools, other members of the department were brought in. A local NGO, *Beyond Ourselves* based in Ndola, assisted by a trainer brought in from Malawi by Jolly Futures, conducted the three-day orientation workshops in Lusaka and Ndola for the teachers and administrators. It also monitored the teachers' progress in the schools afterwards.

The 22 government and community schools were purposively selected by the district Education Boards in the two districts. The research team, however, were allowed to randomly select 10 additional schools to serve as control schools in the study. A total number of 30 learners composed of an equal number of girls and boys, were to be randomly selected in each participating class for each school for testing in reading in a Zambian language and English. The targeted population was 960 learners. However, due to various challenges encountered during the study, the final population tested was 495. The 2018 academic year in primary schools was full of disruptions, chief among them, the opening late of schools because of the cholera outbreak and the prolonged period of national examinations caused by the leaking of examination papers. It was also noticed that there was rampant absenteeism in many of the schools participating more so in the government primary schools. Some schools were excluded from the study because of these challenges.

The study adopted a quasi-experimental design with a pre-test post-tests and an experimental and control group. The experimental group, the pilot schools used the Jolly Phonics programme for approximately 8 months from February to October 2018 while the control schools used whatever they had to teach English literacy over the same period.

The Jolly Phonics programme is a multisensory, systematic synthetic phonics approach to teaching reading and writing in English. It teaches children individual letter sounds and not names of letters. Children are then taught how to blend, or synthesise these sounds to sound out words. Children learn the 42 sounds in a carefully sequenced order. Each sound is introduced through a story, an action and then children learn to form it and blend it with other sounds already learnt to read words. Other irregular words in English are taught as 'tricky word' patterns.

The pre-tests were designed to provide baseline data about the learners reading skills in Zambian languages which they had been learning for two years and English which they were about to start. By comparing these bassline data to the post-test data in the same languages and using similar tests, we would be in a position to assess effectiveness of the Jolly phonics programme in teaching literacy in English. The Zambian languages tests were constructed by the research team. They consisted of ten words ciBemba or ciNyanja words for the two regions respectively, which varied in complexity from two simple syllable words to six syllable words; and also in terms of syllable structure: from simple single vowel syllables to those with complex ones like /mphwa/. The test items were piloted in schools not involved in the pilot and modifications made where necessary. The tests in Zambian languages in addition provided a way of gauging the effect of introducing literacy in English on the development of literacy skills in Zambian languages. During the New Breakthrough to Literacy era, many teachers paid scanty attention to teaching literacy in Zambian languages when English literacy was introduced in Grade 2. This arrested the development of literacy skills in learners in Zambian languages.

For both the English pre-and post-tests, the revised 1974 Burt Word Recognition Test was used. This is an internationally validated, reliable test of English decoding skills. It contains 110 words of varying complexity from simple decodable ones to complex irregularly spelt words. The scores on this test can be converted to reading ages (norms) which can be compared to the child's chronological age to see whether they are reading below or above their age norms. For example, a child who reads 20 words has a reading age of 6 years 2 months.

Findings

The mean score for all the schools (experimental and control) was 4.98 words out of ten in Zambian languages. This means they read roughly about half the words correct. This is about average performance. The highest scoring school came from the experimental group, a community school on the Copperbelt with a mean score of 7.8 words and the lowest was a government primary school in Lusaka at 2.17. The Copperbelt schools with a mean score at 5.40 were slightly better than the Lusaka ones with 4.42.

In the English Burt test, the mean score for all the schools was 13.87 which translates into a reading age of 5 years 9 months. When we matched control schools to experimental schools with similar scores on the Burt test, the mean score was 13.22 which still gave the reading age of 5 years 9 months. We were thus satisfied that the two groups were matched in terms of abilities. The reading age given here indicates that these children were reading English roughly about 4 years below their chronological ages (between 9-10 years). It should be pointed out that there were individual pupils who scored above the mean. The highest was 80 words or 11 years 3 months, a year and some months above the average chronological age.

An important point to note about the performance on the English test is that these children were not expected to have been taught any literacy in English as stipulated by the current literacy policy. They were therefore using their skills in Zambian languages to decode words in English. We did not expect them to pronounce the words correctly but merely awarded them marks for decoding in the way they would read their familiar Zambian language. There was a positive correlation between Zambian language scores and English.

In the post tests, the mean score in Zambian languages for all the children rose from 4.98 in the pre-test to 6.34 words out of 10. The mean score for the experimental group (M=6.81, SE=.20) was significantly better than that of the control group (M=4.93, SE=.37), $t(493)$=4.66 $p<$ .05. These results were interpreted to mean that the Jolly Phonics programme had not adversely affected the literacy development of the learners in the pilot schools.

In the English Burt post-test, the mean score for all the learners improved also from 13.87 to 26.64. This is an improvement from 5 years 9 months to 6 years 7 months. The mean for the experimental group was 29.57 equivalent to a reading age of 6 years 9 moths. The control group mean was 17.96 or 6 years 1 month. This was a difference of some 8 months. The difference between the two groups was significant, t(483)=5.94 $p<$ .05. The highest individual performance came from a pupil in an experimental government primary school at 95 words or a reading age of 12 years 9 months. Although there were still non-readers in both groups, the experimental group was qualitatively better. Most of the Learners in pilot schools read more words with correct English pronunciation

than the control school learners. Community schools in the experimental group were slightly better than government schools in the English post-test

Conclusion and Recommendations

The purpose of the study was to evaluate the effectives of the Jolly Phonics programme in improving reading proficiency in English. In spite of the challenges encountered, it was found to be more effective than what is being used in the government primary schools at the moment. There is considerable empirical evidence in support of the use of systematic synthetic phonics in teaching initial literacy or in interventions to improve literacy achievements for pupils experiencing learning difficulties in literacy. It was also found that the introduction of English literacy in Grade 3 did not adversary affect the development of literacy skills in Zambian languages. If anything, it appeared to support the latter.

There were, however, many challenges that need to be attended to. The NGO *Beyond Ourselves* and the research team did notice that some teachers still needed help with the methodology. Some could not tell the difference between letter names and sounds. It appears they were not using the Jolly app. effectively in learning how to pronounce sounds. There is also the question of the teachers own proficiency in the language: some have problems speaking fluently in English. Some of these problems to do with teachers' competences need to be attended to in pre-service teacher education and some in-service programmes. We found that in Lusaka some teachers had difficulties in teaching Zambian languages, some claiming that it was not their native language. There were also some who claimed that they had not received training in the new Primary Literacy Programme (PLP). Some could not even tell that PLP was also a synthetic method of teaching reading like Jolly Phonics except that it is used in Zambian languages.

One other major problem was learner absenteeism which must be contributing greatly to poor learning in schools. The study lost many pupils because they were either present during the pre-test and absent at the post-test or vice versa.

In general, all the pilot school teachers and heads were in full support of adopting Jolly Phonics as the main method of teaching English literacy in the primary schools. They said they and their learners had found it an enjoyable programme. One teacher remarked, 'my pupils sing the Jolly songs any time there is no teacher in class and they mark the actions for the sounds.'

RECOMMENDATIONS

a. Having seen the programme in action and what it is capable of producing in the learners, the research team **strongly recommends that this programme be considered for adoption in the country as the main method of teaching English literacy.**

b. The Jolly Phonics programme is compatible with the current literacy programme in Zambian languages. Both are synthetic methods of teaching literacy and can, therefore, reinforce each other.
c. All the teachers and administrators involved in the pilot were unanimous in recommending for the adoption of this programme in schools. It was said to be an effective and enjoyable programme.
d. The dismal textbook situation in schools requires urgent attention from the Ministry. The lack of Zambian language of textbooks in the content subjects in lower primary grades is leading to poor teaching of these subjects and is not helping to improve literacy in Zambian languages.
e. The Jolly Phonics readers can be a good source of reading materials in English to support literacy development. We currently have few or no English supplementary readers in any schools.
f. Although another better resourced pilot could be run to take care of the shortcoming in this study (such as the number of participants and schools) so that more reliable results could be obtained, we feel that this would be a mere academic exercise.
g. Teachers need more intensive hands-on training when new initiatives are introduced such the Jolly Phonics. And continuous monitoring to assist them develop full competence in using the methods.

Chapter 1

Introduction

This purpose of this study was to evaluate the effectiveness of the Jolly Phonics literacy programme which was piloted in 22 government and community schools in Lusaka and Copperbelt provinces. It followed the offer made by the owner and founder of Jolly Learning limited, the publisher of Jolly Phonics to the country in 2016 to supply the teaching and learning materials for this programme free of charge to the country. The pilot was part of the offer ad it was designed to demonstrate the efficacy of the programme before the country can adopt it. Jolly phonics was proposed a possible solution to the low literacy levels both in Zambian languages and English in Zambia. The background and rationale for this study are present below.

Background

Language and literacy policies in Zambian

Zambia has been grappling with low literacy levels in primary schools and many interventions have been made to arrest the falling literacy levels with minimal improvements. It is an undeniable fact that literacy undergirds educational achievement; it is impossible for a child to excel in education with very poor reading and writing skills. This is why it is very noticeable when literacy levels fall in an educational system because it affects learner performance in other subjects. The problem of low literacy levels has been blamed on the language and literacy policies that have been followed in the country since 1965. In that year, the Zambian government made a decision to abandon the British colonial policy of using selected regional local languages as media of instruction and languages of initial literacy but instead opted for the use of English from the first grade to the tertiary level as a medium of instruction. They relegated the local languages to the status of mere subjects.

According to Kelly (2000), the period of the 'English medium' from 1965 to 1996 "resulted in a schooled but uneducated generation". It was a period characterised by an education system that encouraged rote learning, memorisation, lack of creativity and problem solving skills on the part of learners. Very few learners were able to benefit from this education. For many, the levels of literacy, for example, were too low for them to benefit from the educational, social and democratic opportunities in the country. We may add that it led to

the persisting poor reading culture in the country. The reasons for this outcome are not difficult to find: because of low English proficiency among learners, the only option open to them was to memorise subject content without clearly understanding what they were learning and they were unable to apply this shallow knowledge in other contexts of learning.

Literacy teaching during this period was based on the "Look-and- Say" method in which learners are made to memorise whole words. Where children are not exposed to extensive reading, this method can leave children with a small stock of memorised words and with no ability to read independently unfamiliar words as they may not have discovered the alphabetic principle: that individual letters represent sounds in the language.

Even before this policy was revised in 1996, there had been calls to change it as early as the 1970s when educationists noticed that literacy levels among primary school children were falling. In the education reform document of 1977 it was doubted whether graduates of the primary schools were sufficiently literate and numerate to face the challenges of life. In a subsequent policy document *Focus on Learning* (MOE, 1992), this issue was again discussed and a proposal made to use the main local languages as media of instruction in the first four years of primary schools. In effect, this would have meant riveting to the colonial language policy. This was not implemented.

Williams' (1993) comparative study of literacy levels in Malawi and Zambia brought to the fore weaknesses inherent in the Zambian language and literacy policies. These two countries had different language policies in that Malawi had a policy similar to the one in Zambia before independence where a local language Chichewa was used as a medium of instruction in the first four grades of primary schools and English as a subject. In Zambia, as mentioned before, English was the sole medium of instruction from grade one to university while Zambian languages, including Cinyanja were subjects. Williams tested children in grades 3, 4 and 6 in both countries. His findings showed that Malawian children performed significantly better in the Bantu language, Chichewa than Zambian children did in Cinyanja. In English, there was no significant difference in the performance of the two groups. The latter result was unexpected considering the fact that Zambian children had more exposure to English- it being both a subject and medium of instruction compared to the children in

Malawi were it was a subject in the lower grades. This result showed that there was little learning going on in Zambia.

In the new education policy published in 1996 entitled *Educating our Future* (MOE, 1996:27), it was acknowledged that the use of an unfamiliar language in teaching reading and writing was one of the factors contributing to the low quality of education in the basic schools. It was thus decided that learners would be given an opportunity to learn initial literacy in any one of the seven regional Zambian languages (ciBemba, ciNyanja, ciTonga, siLozi, Lunda, Luvale and kiKaonde). English was, however, retained as the medium of instruction. This meant that literacy instruction would first be introduced in a local language and then English literacy would follow afterwards. As things turned out, literacy in a local language was introduced in grade one and English was to be taught orally in the first grade. In grade two, English literacy was to be introduced.

A new literacy programme was launched in 1999 called the Primary Reading Programme whose major aim was to raise the literacy levels of learners in primary schools (Kelly, 2000:7). With the help of a South African NGO called Molteno, the New Breakthrough to Literacy (NBTL) course was introduced in Zambian languages and a similar one called Step into English (SITE) for English. Both these courses were an eclectic mix of teaching methods: language experience, analytic phonics, look and say and use of real books. With hindsight, one wonders why the country had to go to such extremes in teaching Bantu languages that have largely transparent orthographies that can be taught easily by using synthetic phonics or as was the case in the colonial period, a syllabic approach. These languages have simple syllable structures rendering them easy to learn through the syllabic method. Even for English, the use of the Language Experience Approach was not so appropriate in that it requires children to use their experience of the language being used to learn to read. But the majority of Zambian children start school with no real experience of English. The oral English course offered in grade one which was designed to equip the learners with some knowledge of English was not sufficient to lead to good results in reading in this method.

However, when the NBTL course was piloted in the Northern Province of Zambia, it appeared to work very well (Kelly, 2000:8). Grade one learners were said to be reading above their grade levels. The programme was rolled out to the rest of the country by 2004.

However, subsequent national assessments of literacy painted a different picture. Literacy levels were still very low. What had gone wrong? Apparently, the good results in the pilot could be said to have been a Hawthorne effect. The teachers involved were well trained and motivated and hence taught very effectively. This resulted in good performance on the part of the learners. This could not be said of some teachers who received training in a cascade fashion from other teachers previously trained. It also became clear that many children who appeared to have broken through to literacy in local languages were unable to read the same languages by grade three properly (Mwansa, 2012). This problem appeared to be a case of arrested development of literacy skills in the local language brought about by the premature introduction of literacy in English. Many teachers abandoned or did not accord much importance to the teaching of literacy in local languages beyond grade two once literacy in English was introduced. Many children thus could not attain fluency in reading local languages. There was also no real transfer of literacy skills from local languages to English as envisaged (MOE, 1996). Transfer of literacy skills from one language to another occurs more effectively when the first language literacy has been sufficiently developed.

A number of findings since the introduction of the New Breakthrough to Literacy have shown that children have low literacy skills. The Grade 5 National Assessment Surveys for 2006 and 2008 reported learning achievements in reading of 35.3% and 39.4% respectively (CDC, 2013). SACMEQ III (2007)(The Southern Africa Consortium for monitoring Educational Quality) reported that of the grade 6 learners tested, only 28.6% read at the basic level. As for reading for meaning, only 14.9% reached this level. These reports showed that not much improvement was being made in raising literacy levels in the country.

This again called for some action on the part of government. The decision made was to go back to the use of regional Zambian languages as media of instruction in the first four grades of primary school. This was designed to give children more exposure to reading and writing in the Zambian languages. In addition, initial literacy was to be in these languages and it would be continued all the way to grade four. English would be introduced as a subject and taught orally in grade 2. This, it was hoped, would familiarise learners to the sounds of English and also provide a basic vocabulary to be used as the basis for literacy in grade 3 when literacy in English would be introduced. A new Primary Literacy Programme

was introduced in 2013. The initial literacy course developed under this programme is outlined in the *National Literacy Framework* (CDC, 2013). It is a systematic synthetic phonics literacy programme. Some of the short coming of the previous programme were addressed among which was the problem of sustainability of the NBTL. This programme had been found to be costly: it had an array of kits and books that government failed to replace. The PLP was cheaper and once a teacher understood the teaching method, he/she could teach even in the absence of books. It also did away with the eclectic approach to teaching literacy by only recommending one approach, systematic synthetic phonics. This also made teaching of literacy less demanding unlike in the era of NBTL. Although a new textbook was developed for teaching English literacy in Grade three, this book has not been distributed to primary schools. The majority of the schools which still have some SITE books available for Grade two are using these to teach Grade three learners.

Rational for the study

Mr Christopher Jolly's offer to give the Jolly learning and teaching materials free of charge to the country in 2016 coincided with a stake holders' meeting at the Ministry of General Education headquarters that was being held to review results of the Early Grade Reading Assessments (EGRA) of Grade two learners under the new literacy programme. To say the least, the results were not impressive although some issues were raised concerning the inappropriateness of the testing instruments. I was at was at this point when Mr Christopher Jolly made his offer of the Jolly Phonics programme as a possible solution to the low literacy levels in the country. In the ensuing discussion, it was agreed that the Jolly programme would have to fit into the current language and literacy policy in the country. It had to be piloted in Grade three because that is where English literacy is introduced. This was a departure from the practice in other countries where it is used as the initial literacy programme.

The original proposal made by Mr Jolly on behalf of Jolly Futures, the philanthropic arm of Jolly Publishing Limited, included the following:

1. That the teaching and learning materials be piloted in six schools to assess their efficacy and that the pilot be subjected to an independent academic evaluation.
2. That Jolly Futures would provide to the pilot schools the following:
    - Free Pupil books 1 and 2

- Free Teacher's Books
- Free Jolly Starter kits and other classroom materials
- A trainer whose expenses would be borne by Jolly Futures
- Deliver the materials to a central address in Zambia

3. That the Ministry of General Education would meet the local cost of transporting materials to the pilot schools, the costs of teachers and other personnel to be involved in the training workshops including the cost of the venue and that of the evaluation study.

This report is an evaluation study of the pilot proposed in item one. The principal researcher from the Department of Language and Social Sciences Education of the University of Zambia's School of Education, volunteered initially to conduct the evaluation of the pilot programme in Lusaka where it was supposed to take place in six schools. However, when the scope of the pilot was expanded by including 12 schools on the Copperbelt and an additional 4 schools in Lusaka, he co-opted in two colleagues from the Department of Language and Social Sciences Education to help with data collection in Lusaka. A non-governmental Organisation, *Beyond Ourselves,* helped to recruit research assistants on the Copperbelt who assisted with data collection there. This organisation also assisted with logistics and accommodation for the lead researcher. In addition, this organisation working with a Malawian trainer trained the teachers from the pilot schools in three-day workshops and later in monitored their progress. Jolly Futures generously covered all the expenses for travel and accommodation of the research team.

Chapter 2

Methodology

The study used a pre-test and post-test quasi-experimental design. It involved an experimental group, the pilot schools which were to be taught using Jolly Phonics and a control group of schools which used an existing literacy programme in the schools to teach literacy in English. For some of the schools as was later learnt, this involved the use of the language experience based Step into English (SITE) programme that was being used during the NBTL programme.

Research Questions

The following are the research questions that guided the study:

1. How well are pupils reading in Zambian languages by the beginning of Grade 3 when they are about to transition from literacy in Zambian languages to English?
2. Are pupils able to transfer reading skills acquired in Zambian languages to reading English words?
3. What is the effect of the introduction of literacy in English on learners' reading skills in Zambian languages in Grade 3?
4. To what extent does Jolly Phonics improve reading performance in English among Grade 3 learners?

To help answer the last research question three hypotheses were tested:

i. There is no significant difference in the English post-test results between the experimental and control schools. (In other words, there is no difference in the performance of the pupils in the experimental schools and those in control schools in the post tests)
ii. There is no significant difference in post-test scores in reading between government and community schools in the experimental group.
iii. There is no significant difference in the post-test scores of experimental schools on the Copperbelt and Lusaka in reading.

By including the last two hypotheses, we hoped to answer questions about the possible effects of the familiar language of the region on the learners' performance. The regional

languages are iciBemba on the Copperbelt and ciNyanja in Lusaka. Secondly, we hoped also to have some information about the possible influence of school type, that is, community schools or government schools, on the performance of the learners.

Population

The population for this study were all the grade 3 learners in all the primary schools in the two selected districts in Lusaka and Copperbelt Provinces. The district Education boards in one district in Lusaka and one on the Copperbelt selected the 22 community and government primary schools for the pilot project. This selection was not random. An additional ten government primary schools were randomly selected to serve as control schools by the research team: two on the Copperbelt and 8 in Lusaka province. The targeted population for learners was 960.

The Experimental Schools

In Lusaka, there were 6 government primary schools and 4 community schools. On the Copperbelt there was an equal number of Community and government schools, that is 6 each. Out of the 22 pilot schools, 3 schools were excluded from participating in the study. Two were from Lusaka where one government primary school had teaching materials stolen in the early stages of the pilot. The other, a community school, opened late due to the cholera outbreak in Lusaka. The opening was delayed because the school did not meet the health requirements set by health officials. When it finally reopened, the administration did not inform the research team in time to visit and conduct pre-tests. This was done much later when learners had already covered a number of sounds in the programme. It should be noted that all the schools actually opened at least a month late for the first term in 2018 because of the cholera outbreak. In Ndola, one community school was excluded from the study because of the absenteeism of the learners. Very few learners who had been present during the pre-test were present at the post-test. Therefore 19 experimental schools are reported upon in this study. However, five of these remaining schools are considered separately in the report because they experienced disruptions during the course of the study. In all of them, non-trained teachers replaced the teachers originally trained to teach the Jolly phonics because the trained teachers left the schools. Four of these are community schools and one a government primary school. The number of participants reported upon in the main study is 370.

Control Schools

It was decided that control classes would be drawn from other schools not participating as experimental schools. The team felt that it would be difficult to tell whether teachers from non-experimental classes, if they were in the same school, might not use the same Jolly Phonics materials to teach their classes or at least to 'borrow' the methodology. As it happened, this fears were justified when it was discovered that one head teacher had actually internally trained all grade three teachers in using Jolly Phonics.

Two non-experimental schools were randomly selected by the research team on the Copperbelt. The number was kept down because of logistics. In Lusaka, 8 schools were randomly sampled to serve as control schools. However, although all the schools allowed the researchers to conduct the pre-tests, two of them later refused to cooperate at the time of the post-tests. Two other government primary schools were excluded from the study by the research team because, in one case, the learners presented at the post-test were mostly different from those who had previously been tested in the pre-test. In the other school, the control class that had been used in the pre-test was split up into three and integrated into other grade three classes. At the time the research assistant went to test the learners, he learnt that other learners came in different sessions. It was difficult to locate these learners. The final total number of participants reported upon in this study is 125 from six schools.

The treatment

Before the pilot study began, a Grade 3 teacher and a head or deputy attended a three day's hands-on training workshop. In attendance were also some provincial and district officials and some zone in-service coordinators.

Jolly Phonics

Jolly Phonics programme is a systematic, multisensory synthetic approach to teaching reading. The term 'synthetic' refers to the fact that this method teaches children letter sounds which are learnt individually and later blended (said rapidly together to make words). For example, after learning the individual sounds /m, t, a/, a child can be taught to blend or synthesise, these into /mat/. Each letter sound is introduced through a story. For example, the story for the sound /s/ is about a snake that is found hissing in the grass. The sound is further illustrated by an action e.g. weaving the arm in a snake-like movement. There is also an accompanying short song for each letter, which children learn to sing. The

learners see the written form of the letter e.g. on a flash card. Its formation is illustrated and practiced by the learners. Then they listen to words to determine which one has the sound being learnt. If they have learnt other sounds, they learn to blend the new sound to form words with them. It is thus a multisensory approach to teaching reading. These activities make it a playful, enjoyable, and memorable learning experience. In later stages, the actions may be omitted. The programme is 'systematic' because there is a clear sequence of introducing the sounds of English, from simple to complex. Empirical studies in many countries have shown that systematic synthetic phonics is an effective method of teaching reading (National Reading panel, 2000; Ehri, 2004; Christensen and Bowey, 2005; Rose, 2006). It gives the learner immediate access to the alphabetic code: that letters represent sounds in the language and that words are merely combinations of individual sounds. Once a child has learnt this code, he/she can decode or sound out any word written in that alphabet.

The jolly Phonics materials used in the pilot included:

1. Teacher's book

This gives guidance on teaching letter sounds in English and explains the theory behind the Jolly Phonics literacy programme. The book also provides the daily lessons on all 42 letter sounds and explains how they are introduced with a story and an accompanying action. In addition, it explains how to teach letter formation, blending and sounding the letters.

The book covers five basic skills:

i. Learning letter sounds
ii. Learning letter formation
iii. Blending for reading
iv. Identifying the sounds in words for writing
v. Tricky words

2. The Phonics Handbook

This is an extended version of the Teacher's book. It contains additional materials for teaching reading, writing and spelling with photocopiable worksheets for learners. The book covers the same five basic skills mentioned above.

2. Finger Phonics Big Books 1-7

These seven colourfully illustrated big books correspond to the groupings of sounds that has been adopted for introducing and teaching the 42 sounds of English. For example, book 1

covers the following sounds: ‘s a t I p n’. The books introduce the sounds of English through stories, illustrate the action for each sound and also provides pictures of objects and actions that have the sound being taught. Because of their large sizes, pupils are able to see the illustrations at a distance and can see the letters, too.

3. Jolly Phonics Pupil Book 1 and 2

These are the activity books for the learners. They are designed to enable learners practice the actions accompanying sounds, form the letters for the sounds and identify sounds in objects that have names containing the sound being taught.

4. Sets of graded decodable readers.

These books contain stories or nonfiction accounts told in controlled decodable vocabulary that increases in difficulty from the red books at level 1 to blue ones at level 4. They are designed to consolidate learners’ decoding and comprehension skills.

5. Wall friezes and posters

These are hang on the walls of the classroom showing such things as the letters of the alphabet, tricky or irregularly spelled English words. These are designed to help learners remember how to deal with challenging sounds and spellings.

6. Teachers learnt how to download and install the Jolly Phonics application from Google Play Store onto their smart phones. The app provides help with the pronunciation of the letter sounds, has songs for all the letters, shows teachers/learners how to form the letters and has other activities that children can do.

The above materials were supplied to the pilot schools after the training workshop. The NGO *Beyond Ourselves* monitored the teaching in schools and gave assistance when required. The research team also had opportunities of visiting a few schools to observe teachers at work.

Test instruments

Zambian language tests

The reading tests were designed to collect baseline data on pupils’ skills in reading in the two Zambian languages already acquired by the children in the pilot and control schools. Because of the current language in education policy as well as literacy policy explained above, the children in the study were expected to have had two years of literacy instruction

in Zambian languages before transitioning to English literacy in Grade three. Since both English and Zambian languages use the same alphabetic writing system and the same Roman script, learners who master the alphabetic system in Zambian languages should be able to read any other language written in the same system such as English (Roberts, 1994). In short, a child learns to read only once. There are, of course, differences in the way the alphabetic writing system has been implemented in English compared to Zambian languages, that is, through the two respective orthographies (spelling systems). The Zambian languages orthographies follow the alphabetic principle quite strictly in having one letter or diagraph to represent one sound while English is not so consistent in doing this. In some cases, one letter can represent more than one sound e.g. 'c' in *re**c**ent* and ***c**at*; and one sound can be represented by more than one letter e.g. /f/ can be spelled as 'ph', 'gh' and 'f' in *find*, *rough* and *phone*. Note also that the five vowel letters 'aeiou' which represent an equal number of sounds in Zambian languages, represent close to 20 in English. This opaqueness in the English orthographies means that one has to make some adjustments in what one has learnt in reading a Zambian language especially in the vowel system.

The Zambian languages reading tests

The Zambian languages reading tests were constructed by the researchers. The pre-test had ten words for reading. The post-test had also the same number of items. The test items were based on the ciBemba and ciNyanja weekly schedules for teaching sounds in Grade 1 in the *National Literacy Framework* (CDC, 2013). The sequencing of sounds in the *National Literacy Framework* was based on (1) the frequency of consonant letter sounds in the sampled literature corpus for each language and (2) the expected level of difficulty in learning each sound by the children. Vowels, which are taught initially, were not part of the sequencing referred to above. For example, in ciNyanja, after the vowels are taught in the first week, the first consonant sound taught is /k/ followed by /m/ and so on. After individual consonants are taught, consonant digraphs (two letters that represent one sound) e.g. **ch** are taught followed by consonant clusters or blends (where individual letters represent different sounds but are blended together) e.g. **nk, mbw, nkw** and so on. These were assumed to be difficult for children to master and thus were placed in the second and third terms of Grade 1. However, it can be argued that a child who has mastered individual consonant phonemes e.g. /n/ and /t/ might not fail to sound out the blend /nt/. This means

that such children need not be taught to sound out consonant blends. By the end of the first year, learners in Grade 1 were expected to have covered all the letter sounds in each language.

The word lists in both the pre- and post- tests varied in complexity from simple two syllabic words to complex six syllabic words. The syllable structures also varied from simple V (vowel only e.g. /a/) or consonant- vowel (CV) e.g., /ka/ to complex ones with consonant blends such as CCCV e.g., /nkwa/. At least three or four words had the simple V or CV syllabic structure while other words contained a mixture of syllabic structures. The expectation was that learners would at least score up to three or four points if they had mastered individual letter sounds and simple syllables. The reading tests were pilot tested in Grade two classes in Kabwe (for ciBemba) and Lusaka (for ciNyanja). In both cases, the learners performed at ceiling and it looked like no modifications were necessary.

English reading test

The Revised Burt Word Recognition Reading Test (1974) was used for testing reading aloud skills in English in both the pre-test and post-tests. The Burt reading test is an international reliable and validated test for testing reading competence for primary and secondary school learners. It consists of 110 English words ordered in levels of difficulty from simple CV words e.g. 'to', 'at' ; CVC, decodable words like 'wet' to lengthy words like 'encyclopaedia'. The score on this test is converted into a reading age. This was used in both the pre-post reading tests separated by between 8 to 10 months.

We did not expect learners to pronounce English words accurately in the pre-test because of the opaqueness of the English orthography. Children who read English words like ciBemba or ciNyanja words were awarded points because they demonstrated that they were able to decode (sound out) English words using their decoding skills from the two Zambian languages. In the post-test, we expected learners to approximate correct English pronunciation because they had been learning English literacy for some eight months or ten.

Procedure

The researcher randomly selected 30 learners consisting of an equal number of boys and girls in classes where the number of learners was more than 30. In other cases, all the learners were tested if the learners were thirty or below. There were a few cases where

learners exceeded 30 by 3 or 4, again here all were tested to avoid making those learners not tested feel discriminated against. The selected learners were individually tested in a quiet room or area by the researcher or research assistant.

Soon after finishing the Burt test, learners were tested in ciBemba or ciNyanja reading depending on the region.

At the end of the test, the learners were thanked for participating in the exercise.

Data Analysis

The data collected were manually entered into the SPSS programme. The data were analysed using descriptive and inferential statistics and the Burt test to compute reading ages.

Chapter 3

FINDINGS

The findings are discussed according to the research questions that guided the study. The first research question was designed to collect baseline data about the learners' literacy skills in Zambia languages, namely, ciBemba on the Copperbelt and ciNyanja in Lusaka for both experimental and control schools.

Research question: 1. How well are pupils reading in Zambian languages by the beginning of grade 3?

Learners were tested by reading a list of ten graded words in Cibemba on the Copperbelt and Cinyanja in Lusaka province. Table 1a gives descriptive statistics of the pre-test in Zambian languages, namely ciBemba and ciNyanja.

SCHOOL	Type of sch.	Mean	N	Std. Deviation	Minimum	Maximum
TIMORTHY MWANAKATWE	Exp. G1	4.6129	31	4.42476	.00	10.00
BAULENI	Exp.G2	5.1667	12	4.30292	.00	10.00
LUSAKASA	Exp.G3	6.7000	20	4.21900	.00	10.00
LOTUS	Exp.G4	5.2143	28	4.40839	.00	10.00
TUNDUYA	Exp.G5	3.2000	30	4.52121	.00	10.00
NORTHMEAD	Exp.G6	5.3462	26	4.48056	.00	10.00
JANNA	Exp.C7	5.2174	23	4.04471	.00	10.00
BAREFOOT	Exp.C8	7.8276	29	2.50811	.00	10.00
YENGWE	Exp.G9	3.6923	26	3.65261	.00	10.00
SUBURBS	Exp.G10	5.5000	24	3.23029	.00	10.00
NDEKE	Exp.G11	4.9200	25	4.13239	.00	10.00
KANIKI	Exp.G12	5.4706	34	3.46616	.00	10.00
MWABOMBENI	Exp.G13	6.6129	31	3.63022	.00	10.00
BUYANTANSHI	Exp. C 14	6.7333	30	3.34183	.00	10.00
MANDEVU	**Cont. G.1**	**2.1739**	**23**	**3.62632**	**.00**	**10.00**
JUSTIN KABWE	**Cont G2**	**3.7391**	**23**	**3.93374**	**.00**	**10.00**

SIMON MWANSA KAPWEPWE	**Cont G3**	**3.3333**	**15**	**3.88526**	**.00**	**9.00**
EMMASDALE	**Cont G4**	**4.0000**	**15**	**4.35890**	**.00**	**10.00**
NDOLA	**Cont G5**	**3.3448**	**29**	**3.91221**	**.00**	**10.00**
KANSENSHI	**Cont G6**	**5.2500**	**20**	**3.79577**	**.00**	**10.00**
Total	20	**4.9777**	494	4.07256	.00	10.00

Table 1a: Means, minimum and maximum scores and standard deviations in Zambian languages pre-tests

Key

Exp. G1 =Experimental Government Primary School

Con. G1= Control Government School

Exp. C1= Experimental Community Primary school

Table 1a shows the means, standard deviations and the minimum and maximum scores of all the learners tested in the experimental and control schools in the two Zambian languages, ciBemba and ciNyanja. The mean for all the schools is 4.98. The highest scoring school was a community school (Exp.C8) on the Copperbelt with 7.8 words out of ten. The lowest scoring school was a control government School (Cont. G1) in Lusaka at 2.17. The performance of the control schools was slightly lower than that of the experimental schools as shown in 1b below.

Type of Sch.	Mean	N	Std. Deviation	Minimum	Maximum
EXPERIMENTAL	5.4499	369	4.01604	.00	10.00
CONTROL	3.5840	125	3.93123	.00	10.00
Total	4.9777	494	4.07256	.00	10.00

1b. Means, minimum, maximum scores and standard deviations of control and experimental schools in Zambian language pre-test

We have to bear this in mind as we discuss post-test results. We will try to compare a few of the control and experimental schools that had similar pre-test results to appreciate the changes that may have occurred due to the treatment. On average, community schools

(M=7.27, SD 2.98) performed better than government primary schools (M=4.66, SD 4.10). Ten schools had scores above the mean for all the schools.

Finally, we also wanted to see if there was any difference in reading levels of learners with different regional language backgrounds: ciBemba and ciNyanja. Table 1c shows the means and standard deviations of the scores of learners in the two regions. As can be seen, the performance in ciBemba on the Copperbelt was better than in ciNyanja in Lusaka.

PROVINCE	Mean	N	Std. Deviation	Minimum	Maximum
LUSAKA	4.4201	219	4.34063	.00	10.00
COPPER-BELT	5.4094	276	3.79413	.00	10.00
Total	4.9717	495	4.07063	.00	10.00

1c. Means and Standard deviations of Zambian language pre- scores in Lusaka and Copperbelt provinces

Below in 1d are the means and standard deviations of the experimental community schools and one government primary school which had changes of teachers during the study.

SCHOOL	Mean	N	Std. Deviation
COMM. 1	.4706	17	1.17886
COMM. 2	.2800	25	1.02144
COMM.3	4.0000	28	3.54860
GOV.1	1.8182	22	3.28976
COMM.4	4.0400	25	4.75640
Total	2.2906	117	3.56965

1 d. Means and standard deviations of schools that suffered teaching disruptions

The mean score for these schools was much lower than that for both the control and other experimental schools. This was an indication of the problems facing these schools before the beginning of the study. Community school 2 (COMM.2) had the lowest pre-test score in a Zambian language than any other followed by community school 1.

Research question2: Are learners able to transfer reading skills acquired in Zambian languages to reading English words?

Since all the learners, in general, were not expected to have been taught any literacy in English, their ability to decode English words was taken as evidence of transfer of decoding skills from Zambian languages to English. The Burt test was used to answer this question. Table 2a gives us the means, standard deviations, minimum and maximum scores on the Burt test. The mean score for each school has been converted to a reading age shown to the left of the mean score.

Table 2a. The means, standard deviations and minimum and maximum scores and the reading ages in English reading

Type of sch.	Mean	Reading Age	N	Std. Deviation	Minimum	Maximum
Exp. G1	14.5806	5.10	31	14.50235	.00	41.00
Exp.G2	15.5000	5.11	12	14.70003	.00	41.00
Exp.G3	15.2857	5.11	21	11.24341	.00	28.00
Exp.G4	19.0000	6.1	28	15.04561	.00	45.00
Exp.G5	9.2000	5.7	30	11.35144	.00	28.00
Exp.G6	17.6154	6	26	18.55603	.00	55.00
Exp.G7	9.8462	5.7	26	10.31384	.00	31.00
Exp.C8	14.3913	5.10	23	11.42859	.00	31.00
Exp.G9	19.0345	6.1	29	10.78518	.00	54.00
Exp.G10	12.5833	5.9	24	17.18168	.00	80.00
Exp.G11	12.9200	5.9	25	12.77667	.00	41.00
Exp.G12	12.3529	5.9	34	10.97623	.00	36.00
Exp.G13	20.3871	6.2	31	17.87862	.00	59.00
Exp. C 14	14.5000	5.11	30	10.05073	.00	32.00
Cont. G.1	**6.1739**	**5.5**	**23**	**11.29220**	**.00**	**42.00**
Cont G2	**10.1304**	**5.7**	**23**	**13.77516**	**.00**	**40.00**
Cont G3	**10.8667**	**5.8**	**15**	**12.50638**	**.00**	**29.00**
Cont G4	**15.8667**	**5.11**	**15**	**15.95917**	**.00**	**45.00**
Cont G5	**10.8276**	**5.8**	**29**	**12.87042**	**.00**	**40.00**
Cont G6	**15.1000**	**5.11**	**20**	**12.33267**	**.00**	**34.00**
Total	**13.8747**	**5.10**	**495**	**13.69271**	**.00**	**80.00**

Key: Exp. G 1=Experimental Government primary school

Cont. G2 =Control Government Primary School 2

The mean score for all the schools was 13.87 which converts to a reading age of 5 years and ten months. Given that most of the children in government primary schools start their education at the age of seven, the average chronological age in grade three would be around 9 years. Community schoolchildren are usually older averaging around 13 (as was found in one school). These children compared to the norms in the Burt test could be said to have been reading English at four years below their chronological age. It has to be remembered that these learners were not expected to have been taught reading and writing in English. They were thus using the decoding skills acquired in Zambian languages to read English words. As earlier mentioned, the research team did not expect the children's pronunciation of English words to be correct but merely looked for evidence that the children could sound out the letters in the English words in the way they had been taught in Zambian languages. For example, many pronounced the word 'to' as in '**to**mboy'. As might have been noticed, the ability range was quite wide. Many scored zeros but there were also exceptional children who read above fifty words. The highest score was 80 words by a girl in an experimental government primary school on the Copperbelt. Schools which had scores above the mean were 8 for the experimental group and 2 for the control.

There was a positive relationship between the learners' performance in Zambian languages and their scores on the English Burt test, r=.782, $p< .01$. Those who could decode Zambian language words were able to use this skill in decoding English words, albeit poorly for most of them.

When we computed the mean scores for the two groups of schools, it was noticed that the experimental schools had a slightly bigger mean than control schools, 14.8 for the former and 11.13 for the latter. This is not a good thing because we are starting with groups of different abilities. In order to get a better picture of the two groups, attempted to match some of the control schools with experimental schools with similar mean scores in the English pre-test as shown in 2b. The abbreviations used for the schools are those in Table 2a.

Table 2b. English mean scores for selected Experimental and Control schools

CONTROL SCHOOL	MEAN SCORE	EXPERIMENTAL SCHOOL	MEAN SCORE
CONT. G 2	10.13	EXP. G7	9.84
CONT. G4	15.86	EXP. G2	15.51
CONT. G5	10.82	EXP. G12	12.25
CONT. G6	15.10	EXP. G3	15.28
TOTAL	**12.97(RA=5.9)**		**13.22 (5.9)**

The means for the two groups are very similar as can be seen yielding the same reading age, 5 years 9 months. We will use this as a bassline to compare to the post-test English mean score and reading age for the two groups to gauge the differential effects of the two teaching programmes in the experimental and control schools. We turn to this issue in the next section.

Research question 3. To what extent does Jolly Phonics improve reading performance in English among grade 3 learners?

In answering this question, we posed a number of hypotheses:

i. There is no significant difference in the post-test results between the experimental and control schools. (In other words, there is no difference in the performance of the pupils in the experimental schools and those in control schools in the post- tests)
ii. There is no significant difference in post-test scores between government and community schools.
iii. There is no significant difference in the post-tests scores of schools on the Copperbelt and Lusaka in reading

We first computed mean scores of the learners' performances in all the schools and then used the independent *t*-test to see if there was any significant difference between the experimental and the control schools. We further compared the performance of the learners by school type (community V government) and province. Finally we used the

selected schools in Table 2b to have a better matched comparison of the experimental and control schools.

Table 3a Means, standard deviations, minimum and maximum scores of all schools in the English pre-and post-tests.

SCHOOL		PRE.ENG	POST.ENG
EXP. G1	Mean	14.5806	27.2903
	N	31	31
	Std. Deviation	14.50235	17.09424
	Minimum	.00	.00
	Maximum	41.00	51.00
EXP, G2	Mean	15.5000	29.6667
	N	12	12
	Std. Deviation	14.70003	15.66892
	Minimum	.00	6.00
	Maximum	41.00	56.00
EXP. G3	Mean	15.2857	27.4286
	N	21	21
	Std. Deviation	11.24341	16.98991
	Minimum	.00	.00
	Maximum	28.00	54.00
EXP. G4	Mean	19.0000	34.6786
	N	28	28
	Std. Deviation	15.04561	18.22910
	Minimum	.00	.00
	Maximum	45.00	56.00
EXP. G5	Mean	9.2000	20.3333
	N	30	30
	Std. Deviation	11.35144	18.47707
	Minimum	.00	.00
	Maximum	28.00	59.00
EXP. G6	Mean	17.6154	32.8462
	N	26	26
	Std. Deviation	18.55603	25.12957
	Minimum	.00	.00
	Maximum	55.00	94.00
CONT. G1	Mean	6.1739	8.9130
	N	23	23
	Std. Deviation	11.29220	14.26666
	Minimum	.00	.00

	Maximum	42.00	54.00
CONT. G2	Mean	10.1304	17.4783
	N	23	23
	Std. Deviation	13.77516	15.89703
	Minimum	.00	.00
	Maximum	40.00	51.00
CONT. G 3	Mean	10.8667	15.8000
	N	15	15
	Std. Deviation	12.50638	16.62270
	Minimum	.00	.00
	Maximum	29.00	39.00
CONT. G4	Mean	15.8667	19.1333
	N	15	15
	Std. Deviation	15.95917	18.45793
	Minimum	.00	.00
	Maximum	45.00	49.00
EXP. G 6	Mean	9.8462	28.0385
	N	26	26
	Std. Deviation	10.31384	14.05839
	Minimum	.00	5.00
	Maximum	31.00	57.00
EXP. C 1	Mean	14.3913	36.4783
	N	23	23
	Std. Deviation	11.42859	26.10272
	Minimum	.00	.00
	Maximum	31.00	87.00
EXP. C2	Mean	19.0345	39.4138
	N	29	29
	Std. Deviation	10.78518	15.26789
	Minimum	.00	3.00
	Maximum	54.00	68.00
CONT. G5	Mean	10.8276	18.5862
	N	29	29
	Std. Deviation	12.87042	20.10600
	Minimum	.00	.00
	Maximum	40.00	70.00
EXP. G7	Mean	12.5833	24.7083
	N	24	24
	Std. Deviation	17.18168	16.28678
	Minimum	.00	.00
	Maximum	80.00	81.00
EXP. G8	Mean	12.9200	28.2000

	N	25	25
	Std. Deviation	12.77667	21.98295
	Minimum	.00	.00
	Maximum	41.00	95.00
EXP. G9	Mean	12.3529	23.0294
	N	34	34
	Std. Deviation	10.97623	15.17271
	Minimum	.00	.00
	Maximum	36.00	52.00
CONT. G6	Mean	15.1000	28.8000
	N	20	20
	Std. Deviation	12.33267	18.39222
	Minimum	.00	.00
	Maximum	34.00	58.00
EXP. G10	Mean	20.3871	37.6774
	N	31	31
	Std. Deviation	17.87862	23.01360
	Minimum	.00	.00
	Maximum	59.00	80.00
EXP. C3	Mean	14.5000	25.6667
	N	30	30
	Std. Deviation	10.05073	10.91451
	Minimum	.00	.00
	Maximum	32.00	51.00
Total	Mean	**13.8747**	**26.6444**
	N	495	495
	Std. Deviation	13.69271	19.54479
	Minimum	.00	.00
	Maximum	80.00	95.00

Table 3a shows that the mean score for all the schools improved from 13.86 in the pre-test to 26.64. These two figures convert to 5 years 10 months and 6 years 7 months respectively. This shows a gain of 9 months. We can also see that there were some individual children who made quite substantial gains in reading in the period between the tests. The highest score was 95 (12 years 9 months), which is about three years above the average chronological age of the government primary school learners, was from an experimental

government school on the Copperbelt. The second best at 94 also came from an experimental government school in Lusaka province.

But this gain is for all the schools, we need to know by how much experimental schools gained or lost in relation to control schools to tell whether the Jolly Phonics programme was more effective than what was being used in control schools. Table 3b gives means and standard deviations, minimum and maximum scores for the two groups.

Table3b English post-test means, standard deviations, minimum and maximum scores of the Experimental and Control schools

Type of School	Mean	N	Std. Deviation	Minimum	Maximum
EXPERIMENTAL	29.5757	370	19.15253	.00	95.00
CONTROL	17.9680	125	18.13077	.00	70.00
Total	26.6444	495	19.54479	.00	95.00

Table 3b shows that the Experimental group performed better with a mean of 29.57 (6 years, 9 months) compared to the Control group with a mean of around 17.96 (6 years 1 month) a difference of 8 months in reading age. Although both groups still had non-readers scoring zeroes in the post-test, there were higher scorers in the experimental group. For example the maximum score was 95 (12 years 9 months) compared to 70 (10 years, 2 months) for the Control group.

If we go back to the matched schools in Table 2b and add the post-test English results, we get what is shown below in Table 3c. The table shows that the Experimental schools did better with a mean score of 27.04 (6 years 7 months) than the Control group at 20.99 (6 years, 2 month). This is a difference of 5 months in reading age.

Table 3c Comparison of means and reading ages of selected Experimental and Control schools in the pre and post English scores

CONTROL SCHOOL	PRE-ENG	POST ENG	EXPERIMENT-AL SCHOOL	PRE-ENG	POST ENG
CONT. G 2	10.13	17.47	EXP. G7	9.84	28.03
CONT. G4	15.86	19.13	EXP. G2	15.51	29.66

CONT. G5	10.82	18.58	EXP. G12	12.25	23.03
CONT. G6	15.10	28.80	EXP. G3	15.28	27.42
TOTAL	**12.97(RA= 5.9)**	**20.99(RA= 6.2)**		**13.22 (5.9)**	**27.04 (RA= 6.7)**

We used an independent t-test to test the hypotheses stated below.

H01: There is no significant difference between the post-test scores of the learners reading skills in English of the experimental and control schools.

This hypothesis was tested by comparing all the experimental schools with the control schools. It was found that there was a significant difference between the experimental (*M*=29.57, SE= .99) and the control schools (*M*=17.96, SE= 1.62) in reading on the Burt test, *t*(483)=5.94, *p*< .05. Thus the null hypothesis was rejected.

H02: There is no significant difference in post-test scores between government and community schools in the English reading test.

We run an independent t-test to determine whether there was a significant difference between the mean scores of experimental government primary schools (*M*=25.86, SE= .95) and community primary schools (*M*=32.42, SE = 1.93). It was found that there was a significant difference between the two, *t*(493)=-2.43, *p* >.05. The null hypothesis was rejected. It was therefore concluded that there was a significant difference between the two experimental groups. The Community schools performed better than government primary schools.

The effect of Jolly Phonics on Zambian language literacy

In the pre-test, it was noted that performance in Zambian languages tests was positively correlated with performance in English reading. We argued that the decoding skills in Zambian languages had been transferred to English decoding. What then was the effect of introducing direct literacy in English on Zambian languages decoding? To answer this question we first compared the performance of learners in the pre- and post-tests of Zambian languages.

Table 4a Means, standard deviations, minimum and maximum of the pre-and post- Zambian languages scores

SCHOOL		ZAMBIAN LANG	POST. ZAMBIAN LANG
EXP. G1	Mean	4.6129	7.0968
	N	31	31
	Std. Deviation	4.42476	4.32323
	Minimum	.00	.00
	Maximum	10.00	10.00
EXP, G2	Mean	5.1667	7.3333
	N	12	12
	Std. Deviation	4.30292	3.28449
	Minimum	.00	.00
	Maximum	10.00	10.00
EXP. G3	Mean	6.4762	5.1429
	N	21	21
	Std. Deviation	4.23815	4.49762
	Minimum	.00	.00
	Maximum	10.00	10.00
EXP. G4	Mean	5.2143	7.6071
	N	28	28
	Std. Deviation	4.40839	3.77457
	Minimum	.00	.00
	Maximum	10.00	10.00
EXP. G5	Mean	3.2000	4.3667
	N	30	30
	Std. Deviation	4.52121	4.15629
	Minimum	.00	.00
	Maximum	10.00	10.00
EXP. G6	Mean	5.3462	6.2308
	N	26	26
	Std. Deviation	4.48056	4.21718
	Minimum	.00	.00
	Maximum	10.00	10.00
CONT. G1	Mean	2.1739	3.4783
	N	23	23
	Std. Deviation	3.62632	3.81230
	Minimum	.00	.00
	Maximum	10.00	10.00
CONT. G2	Mean	3.7391	6.0000

	N	23	23
	Std. Deviation	3.93374	3.58025
	Minimum	.00	.00
	Maximum	10.00	10.00
CONT. G 3	Mean	3.3333	4.2000
	N	15	15
	Std. Deviation	3.88526	4.29618
	Minimum	.00	.00
	Maximum	9.00	10.00
CONT. G4	Mean	4.0000	4.3333
	N	15	15
	Std. Deviation	4.35890	4.38613
	Minimum	.00	.00
	Maximum	10.00	10.00
EXP. G 6	Mean	3.6923	5.6154
	N	26	26
	Std. Deviation	3.65261	3.62300
	Minimum	.00	.00
	Maximum	10.00	10.00
EXP. C 1	Mean	5.2174	6.5652
	N	23	23
	Std. Deviation	4.04471	4.07683
	Minimum	.00	.00
	Maximum	10.00	10.00
EXP. C2	Mean	7.8276	8.6552
	N	29	29
	Std. Deviation	2.50811	1.95075
	Minimum	.00	1.00
	Maximum	10.00	10.00
CONT. G5	Mean	3.3448	3.9655
	N	29	29
	Std. Deviation	3.91221	4.30517
	Minimum	.00	.00
	Maximum	10.00	10.00
EXP. G7	Mean	5.5000	7.8333
	N	24	24
	Std. Deviation	3.23029	2.97331
	Minimum	.00	.00
	Maximum	10.00	10.00
EXP. G8	Mean	4.9200	6.3600
	N	25	25
	Std. Deviation	4.13239	3.97786

	Minimum	.00	.00
	Maximum	10.00	10.00
EXP. G9	Mean	5.4706	7.2353
	N	34	34
	Std. Deviation	3.46616	3.79041
	Minimum	.00	.00
	Maximum	10.00	10.00
CONT. G6	Mean	5.2500	7.8000
	N	20	20
	Std. Deviation	3.79577	2.74533
	Minimum	.00	1.00
	Maximum	10.00	10.00
EXP. G10	Mean	6.6129	7.4516
	N	31	31
	Std. Deviation	3.63022	3.39449
	Minimum	.00	.00
	Maximum	10.00	10.00
EXP. C3	Mean	6.7333	7.6333
	N	30	30
	Std. Deviation	3.34183	3.56693
	Minimum	.00	.00
	Maximum	10.00	10.00
Total	Mean	4.9717	6.3434
	N	495	495
	Std. Deviation	4.07063	3.99028
	Minimum	.00	.00
	Maximum	10.00	10.00

The table shows that there was an improvement in test scores between the pre- and post-tests in Zambian languages in both the experimental and control schools. This suggests that English literacy did not adversely affect decoding skills in Zambian languages. In addition, the experimental group performed better than the control group in the Zambian language post-tests. The experimental group had a mean of 6.81, SE=.20 while the control group had 4.93, SE =.37. This difference was significant $t(493)=4.66$ $p< .05.$

For both groups, literacy in English did not appear to affect the learners literacy in Zambian languages as there was some growth. .

The relationship between the Zambian language post scores and post scores for English was also examined to determine whether it was negative or positive. The Pearson correlation coefficient was run. The results are shown in Table 4b.

		POST.ENG	POST. ZAMBIAN LANG
POST.ENG	Pearson Correlation	1	.758**
	Sig. (2-tailed)		.000
	N	495	495
POST. ZAMBIAN LANG	Pearson Correlation	.758**	1
	Sig. (2-tailed)	.000	
	N	495	495

.

Table 4b: The relationship between Zambian language post scores and English post scores.

As shown in Table 4b, there is a significant relationship between the learners' performance in Zambian languages' post-test and the English post-test, $r = .76$, $p < .01$. The conclusion is that the Jolly Phonics programme did not have any adverse effect on the learners' Zambian language literacy.

Chapter 4

Discussion

The purpose of the Jolly pilot study was to find out whether the Jolly phonics programme is effective in teaching learners literacy in English. This was investigated through a quasi-experimental design involving an experimental group, the selected 22 government and community schools that used the Jolly Phonics programme and 10 control schools that used the existing English literacy programme in government schools. To assess the efficacy of the programme, it was necessary to have a pre-test post-test design. The pre-test collected baseline data about the pupils' reading skills in Zambian languages and their ability to use this to read English. This was necessary because of the current language and literacy policy in the country. Children start learning literacy in Zambian regional languages and use these as media of instruction in the first four grades. English is introduced initially as a subject taught orally in Grade 2 while literacy follows in Grade 3. The pre-test collected data about the learners' Zambian language reading skills and their potential to transfer such skills to English. The post-tests were used to assess the effect of the treatment that is the use of Jolly Phonics or the SITE programme in government schools on learners' reading abilities in English.

The school contexts

At the beginning of this pilot study, we had opportunities of interviewing class teachers in the pilot as well as those in the control schools about the programmes that were being used in the schools to teach English literacy. In most of the schools, teachers had fallen back on the Step Into English (SITE) programme that was used during the Primary Reading Programme to teach English in Grade 2. Like the NBTL course in Zambian languages, the main method of teaching reading was the Language Experience Approach augmented with analytic phonics. For second language learners, the Language Experience Approach might not be an appropriate method in that most children come to school with no prior ability to speak or understand the second language. It works well with those who come from homes where the second language is used. The use of analytic phonics also requires that learners are immersed in books to help them build a big sight vocabulary through, for example, the use of word analogies. This happens when a child notices after learning, for example, words like *story and his,* that the word *history* contains parts from what she had previously learnt. Through this process children may eventually discover that words are composed of individual sounds and this then leads them to become independent readers as they can turn this knowledge into a decoding skill to read unfamiliar words. However, we found that in

the majority of these schools, the number of existing textbooks for this programme was very small or even non-existent. Sometimes there was just a teacher' book. In some cases, there were a few pupils' books. We also found schools were they had practically nothing and teachers talked vaguely of using their 'initiative' in teaching reading. We were aware that a new textbook had been written by the Curriculum Development Centre for Grade 3 English but except for one school on the Copperbelt, it was not in any of the schools we visited. We were also surprised to learn that the situation was the same in Zambian language literacy. Most of the schools had very few textbooks for teaching Zambian language literacy.

The textbook situation was the same in other subjects in the lower primary school curriculum. These are supposed to be in Zambian languages which are the current media of instruction at junior primary school level. The existence of these textbooks would support the literacy development of learners in Zambian languages and consequently their ability to transfer literacy skills to English. Some teachers were struggling to translate subject matter from old English textbooks for content subjects into Zambian languages. The lack of textbooks obviously adversary affects the teaching of literacy in Zambian languages and more so English in control schools. Interestingly enough, the textbook situation was slightly better in some community schools.

Time on task

The 2018 school year had a number of serious disruptions. Schools opened late because of the outbreak of cholera in Lusaka. As mentioned earlier, one community school remained closed for much longer as they were unable to meet the minimum health requirements set for reopening. Then when national examinations started sometime in October, the lower primary school learners were sent home because the examination classes were using their rooms for examinations. This would have taken about three weeks; however, when examinations papers were discovered to have been leaked, examinations were postponed to be resat later. Schools remained closed for the lower primary grades. This affected the timing for conducting post-tests. In fact, in a number of schools, we had to do the testing in January 2019 in the first two weeks. Some control schools discussed earlier refused to take part in the post-tests giving the above disruptions in the school calendar as excuses. It was not surprising to learn that a number of teachers in the experimental classes had not

finished teaching all the 42 sounds in the Jolly Phonics by the time we were conducting the post tests. Apart from the big disruptions discussed above, many schools were involved from time to time in activities that took away time for learning and some of these affected our schedules for testing. We noted that community schools learners had more learning time in school than government primary school ones. Learner absenteeism was rampant in all the schools.

Zambian language pre-tests

The purpose for testing learners in Zambian languages was twofold: we wanted to collect baseline data about the learners' decoding skills in Zambian languages and their ability to transfer these skills to English decoding before the introduction of the Jolly phonics programme. Secondly, we wanted baseline data that would help us to tell whether the introduction of the Jolly Phonics programme would negatively affect the learners' literacy in Zambian languages. This data would be compared to the final performance of the same leaners in the Zambian language post-tests since the tests were matched in terms of difficulty. A fall in the post-test would be interpreted as a negative effect from the English programme. During the Breakthrough to literacy programme, it was noticed that some teachers paid little attention to continuing with the teaching of Zambian language literacy once literacy in English was introduced in Grade 2. We therefore wanted to see whether this would be repeated.

The results reported for both experimental and control schools in Zambian languages in the pre-test, were poor. The mean for the two groups was 4.9 (see Table 1a). This corresponded roughly to reading the easiest words in the reading word lists (of ciBemba and ciNyanja), those with fewer and simpler syllabic structures. There were many learners who had zero scores too. This is alarming given the fact that these learners at the beginning of Grade 3 should have been merely consolidating their decoding skills, becoming more fluent as they prepare to use their reading skills for learning. However, they were decoding at very basic level, sounding out words laboriously. Very few learners were able to read the words fluently. There two community schools were learners had started their first grade learning English literacy but were told by ministry officials to shift to a Zambian language in grade 2. Their results in Zambian language were very poor.

Although we found good teachers of literacy in Zambian languages, there were a number who appeared to be not so knowledgeable. Some claimed they had not received any training in teaching the new literacy programme. There were also a few cases of teachers in Lusaka who claimed they were themselves not fluent readers of Cinyanja. All these had implications on the effectiveness of their teaching. The results in the post-test for ciBemba on the Copperbelt were slightly better than those for ciNyanja in Lusaka.

The English Pre-test

The purpose for conducting this pre-test was to determine what the learners' reading abilities were in English. Since it was known that they had not been exposed to English literacy, we expected them to use their decoding skills in Zambian languages to attempt reading English since both types of languages are written in the alphabetic writing system. However, due to the opaqueness of the English orthography, we did not expect the learners to have correct pronunciation of English words. They were expected to read English words like ciNyanja and ciBemba words. The performance was also poor although there were a few exceptional children who were able to decode even up to 80 words on the Burt test. The majority could only attempt a few regular words like 'wet', 'at', 'went' etc., which are decodable from the Zambian language background. When they got to words like 'tongue', they got stuck. The results showed that some of the learners had the foundational skills of developing into good readers, the fact that they could decode unfamiliar words. They need to be immersed in reading materials to build fluency.

The results of this pre-test correlated with those of Zambian languages which we took to mean that the decoding skills in Zambian languages played a part in their decoding of English words. Since this relationship was positive, it also meant that those with good decoding skills in Zambian languages were better at decoding English words.

English post test

The same Burt test was used in the post-test. The findings showed some improvement over the pre-test ones which we could attribute to the teaching of English literacy that had occurred. In both the experimental and control schools, this increase in scores was noticed. However, it was higher and significantly so in the Jolly phonics classes. The highest individual performance came from a pupil in an experimental government primary school at 95 words or a reading age of 12 years 9 months. Although there were still non-readers in both groups, the experimental group was qualitatively better. Most of the Learners in pilot schools read more words

with correct English pronunciation than the control school learners. Community schools in the experimental group were slightly better than government schools in the English post-test.

Chapter 5

Conclusion and Recommendations

The purpose of the study was to evaluate the effectives of the Jolly Phonics programme in improving reading proficiency in English. In spite of the challenges encountered, it was found to be more effective than what is being used in the government primary schools at the moment. There is considerable empirical evidence in support of the use of systematic synthetic phonics in teaching

initial literacy or in interventions to improve literacy achievements for pupils experiencing learning difficulties in literacy. It was also found that the introduction of English literacy in Grade 3 did not adversary affect the development of literacy skills in Zambian languages. If anything, it appeared to support the latter.

There were, however, many challenges that need to be attended to. The NGO *Beyond Ourselves* and the research team did notice that some teachers still needed help with the methodology. Some could not tell the difference between letter names and sounds. It appears they were not using the Jolly app. effectively in learning how to pronounce sounds. There is also the question of the teachers own proficiency in the language: some have problems speaking fluently in English. Some of these problems to do with teachers' competences need to be attended to in pre-service teacher education and some in-service programmes. We found that in Lusaka some teachers had difficulties in teaching Zambian languages, some claiming that it was not their native language. There were also some who claimed that they had not received training in the new Primary Literacy Programme (PLP). Some could not even tell that PLP was also a synthetic method of teaching reading like Jolly Phonics except that it is used in Zambian languages.

One other major problem was learner absenteeism which must be contributing greatly to poor learning in schools. The study lost many pupils because they were either present during the pre-test and absent at the post-test or vice versa.

In general, all the pilot school teachers and heads were in full support of adopting Jolly Phonics as the main method of teaching English literacy in the primary schools. They said they and their learners had found it an enjoyable programme. One teacher remarked, 'my pupils sing the Jolly songs any time there is no teacher in class and they mark the actions for the sounds.'

RECOMMENDATIONS

a. Having seen the programme in action and what it is capable of producing in the learners, the research team **strongly recommends that this programme be considered for adoption in the country as the main method of teaching English literacy.**

b. The Jolly Phonics programme is compatible with the current literacy programme in Zambian languages. Both are synthetic methods of teaching literacy and can, therefore, reinforce each other.

c. All the teachers and administrators involved in the pilot were unanimous in recommending for the adoption of this programme in schools. It was said to be an effective and enjoyable programme.

d. The dismal textbook situation in schools requires urgent attention from the Ministry. The lack of Zambian language of textbooks in the content subjects in lower primary grades is leading to poor teaching of these subjects and is not helping to improve literacy in Zambian languages.

e. The Jolly Phonics readers can be a good source of reading materials in English to support literacy development. We currently have few or no English supplementary readers in any schools.
f. Although another better resourced pilot could be run to take care of the shortcoming in this study (such as the number of participants and schools) so that more reliable results could be obtained, we feel that this would be a mere academic exercise.
g. Teachers need more intensive hands-on training when new initiatives are introduced such the Jolly Phonics. And continuous monitoring to assist them develop full competence in using the methods.

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Appendices

A. Jolly Learning starter kit

The Phonics Handbook (a teacher's guide)
Jolly Phonics DVD
Jolly Phonics Wall Frieze (for display on the wall)
Jolly Phonics Letter Sound Strips (a reference strip for each child)
Finger Phonics Big Books 1-7 (colourful big books for teaching the letter sounds)
Jolly Phonics Word Book
Jolly Phonics Cards (flash cards)
Jolly Phonics Alternative Spelling and Alphabet Posters
Jolly Phonics Tricky Word Wall Flowers
Jolly Songs (catchy songs for each letter sound, with an audio CD provided)
Jolly Readers Level 1 – Complete Set of 18 different storybooks
Jolly Readers Level 2 – Complete Set of 18 different storybooks

B. Zambian language tests (ciBemba)
Pre-test
isa

meka

tinta

Lepula

Inswa

Winjibeba (nonce word)

inkwashi

bamfyenga

chipwelukilo

calilandubwi

Post test

mona

sela

ponda

kakula

imbwili

langashe

pyulula

anshangila

tente

amafisakanwa