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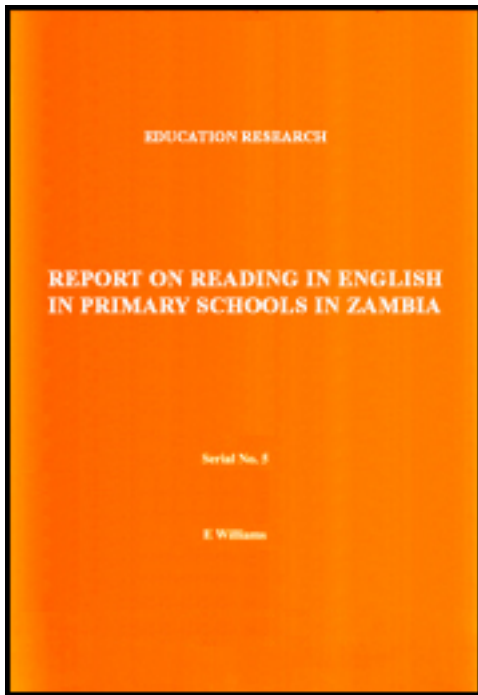
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# Report on reading in English in primary schools in Zambia - Education Research Paper No. 05, 1993, 55 p.



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**Overseas Development Administration**

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# Overseas development administration

## OCCASIONAL PAPERS ON EDUCATION

This is one of a number of Occasional Papers issued from time to time by the Education Division of the Overseas Development Administration. Each paper represents a study or piece of commissioned research on some aspect of education and training in developing countries. Most of the studies were undertaken in order to provide informed judgements from which policy decisions could be drawn, but in each case it has become apparent that the material produced would be of interest to a wider audience, particularly but not exclusively those whose work focuses on developing countries.

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# Summary and recommendations

1. The aims of this project were:

- (i) to collect data on the reading proficiency in English of primary school children in Zambia.
- (ii) to report on methods used by teachers in primary schools in the teaching of reading.
- (iii) to describe conditions in schools in terms of class size, books, and teacher qualifications.
- (iv) to characterise the approach to reading in teacher training colleges.

2. In Zambia English is taught as a subject and is the main medium of education for the seven years of the primary school course.

3. Following an initial preparatory visit, it was decided to assess reading proficiency in English by means of two tests. The first was a specially prepared modified cloze test of 60 items, graded into three subtests aimed at years 3, 4 and 6 of primary schools. This is referred to as Word Find. The second test was an individual read aloud test with comprehension questions, again graded into subtests for years 3, 4 and 6.

4. In the main data collection visit (May 1992) the Word Find reading test was administered to 452 primary pupils in 5 schools (2 urban, 3 rural). The individual read aloud test was administered to 44 pupils. In addition a 60 item modified cloze reading test in Nyanja was administered (in Lusaka and a Nyanja speaking area) to the same 452 pupils to help establish whether pupils had a reading problem or a language problem in their English reading.

5. Data on the approach to reading in teacher training was obtained through examination of teacher training syllabuses and interviews with training college staff from 2 teacher training colleges.

6. Observation of reading lessons was carried out in 13 classes from Grade 1 to Grade 5.

**7.** Data was collected on teachers, class numbers, books and general educational provision in the 5 schools where testing took place. Further data at a national level was taken from *Focus on Learning* (MOE, 1992).

**8.** The results of the Word Find reading test indicate that in the five schools tested there was inadequate comprehension of texts judged to be at their level on the part of:

- approximately 85% of Grade 3 pupils
- approximately 88% of Grade 4 pupils
- approximately 74% of Grade 6 pupils

The reading ability of year 3 and year 4 pupils gives particular cause for concern. Although year 6 pupils have for the most part adequate comprehension of texts from year 3 and 4 levels, it is difficult to see how such limited ability can enable them to read to learn in other subject areas. These findings are in line with earlier research eg Sharma (1973) who found that on a recognition test of 40 words taken from coursebooks for grades 1, 2 and 3, only 4.5% of grade 3 pupils were able to read all the words correctly, while only 7.2% of grade 3 pupils could read all the grade 1 and 2 words correctly.

**9.** The findings of the individual Read Aloud tests, although more impressionistic, confirm the results of Word Find, in that they suggest the majority of pupils in Grades 3 and 4 have considerable difficulty with material deemed appropriate to their level. Grade 6 pupils also have problems, although they seem again to cope with material below their level.

**10.** The results of the Nyanja reading test suggested that the majority of pupils at Grades 3 and 4 are weak in reading in Nyanja. Grade 6 pupils too are not on the whole very proficient. There is a tendency for those whose home language is Nyanja to do better than those from a non-Nyanja speaking background, but this is not statistically significant. The apparent weakness of the pupils in reading Nyanja merits further investigation.

**11.** As far as the methodology of teaching reading in teacher training colleges is concerned, initial courses have in the past tended to give too much prominence to "look and say" methods which stress accuracy of reading aloud, and which do not promote reading as a process of acquiring meaning from text. Much teacher training seems to be devoted to going through the steps in the Teachers' Handbooks and does not foster a flexible response on the part of the teachers to difficulties that their learners might encounter in reading.

**12.** Classroom observation indicates that much teaching of reading proceeds through



repetition of the text (ie a "look and say" approach) with insufficient attention being paid to the presentation of meaning and checking of understanding. However, there were exceptions in some of the Grade 1 and 2 classes.

**13.** In the five schools there was a suggestion that the number of books per pupil improved reading proficiency, as did the presence of trained teachers. However the evidence was not conclusive. Class size, on the evidence of these schools, did not in itself appear to be a determining factor in reading proficiency. However, these suggestions should not be regarded as indicative of general trends. Larger differences between schools with respect to these factors, and also a larger number of schools, would be needed to produce more conclusive evidence.

**14.** There were no statistically significant sex differences in the results of the Word Find reading test, although girls were marginally superior to boys.

**15.** While urban children were estimated to score about 7 points better than rural children on the Word Find test, this was not statistically significant because of the small number of schools involved.

**16.** There were, as expected, large and highly significant differences on test performance between the different Grades (3, 4 and 6) indicating that pupils improve the longer they stay in school.

**17.** Although disquieting, the situation in Zambian primary schools is not entirely gloomy. Pupils certainly progress over time, and there is a small number of pupils who do seem to read adequately at their level, despite the circumstances. If more of their colleagues are to achieve satisfactory standards however, attention should be given to the following:

(i) First, more teachers should see reading as a process of meaning making, and not as a process of "barking at print". A more meaning-oriented approach would require teachers to attend to the presentation of meaning of new language and to develop techniques for the checking of understanding.

(ii) There are implications here for teacher trainers. They too need to appreciate the importance of seeing reading as essentially concerned with understanding. It may well be that the first priority should be to provide the trainers themselves with courses that expose them a variety of meaning-oriented approaches to reading.

(iii) This change of approach may be helped by the new teaching material

(the *Zambia Basic Education Course*, currently being introduced) which is claimed to encourage teachers and pupils to think of reading as a process of obtaining information and as an opportunity to be communicated with, rather than a process of parrotting the book.

**Recommendation 1:** That inservice methodology sessions should be provided for primary school teachers on a systematic basis, and that it should be ensured that a "meaning making" approach to reading is integrated into the sessions.

**Recommendation 2:** In pre-service teacher training in the colleges it should be ensured that a "meaning making" approach to the teaching of reading is given prominence, and that trainees are equipped with appropriate techniques for presenting meaning and checking understanding, and for reacting to pupils who encounter difficulty with texts.

(iv) The current development of competency tests in reading at Grade 4 to be administered annually to a 1.5% sample as part of a proposed National Assessment Scheme (see Kelly, 1993) will serve a useful role in monitoring a situation which the present descriptive study suggests is serious. As the project is already under way, no specific recommendation is made, other than a general call for support.

**Recommendation 3:** That support be given to the Zambian project to develop reading achievement tests at Grade 4.

**18.** The Grade 7 examination has an important influence on teaching, especially in the upper primary school. In order to have a more positive washback effect on teaching, the examination should as far as is practical reflect a more comprehensive view of reading, including a greater variety of text types, and also allow for the assessment of a wider range of ability while retaining its function of selection for Grade 8.

**Recommendation 4:** That specialist research be carried out into:

(a) specifying the reading comprehension abilities relevant to real-life situations outside the school, to reading to learn in other school subjects, and to the needs of the majority of pupils who will end their schooling at Grade 7.

(b) investigating examination formats which lend themselves to assessment of the selected reading abilities, bearing in mind the practicalities of the situation.

**19.** Although pupils may "learn how to read" at a very basic level, from the blackboard,

they will not become fluent readers if they *only* read from the blackboard (or even if they only read slowly from a coursebook under the teacher's direction). It is widely agreed that people become fluent readers through doing a lot of reading - there is no short cut. In Zambian primary schools at the moment it seems that book provision may be improved not only with the introduction of the *Zambia Basic Education Course*, but also by the UNICEF funded sets of class readers intended for Grades 2, 3 and 4, and the donation by the ODA of book boxes for self-access reading to Grades 3, 4 and 5. In addition the old *Zambia Primary Course* readers are to be re-issued as supplementary readers.

**Recommendation 5:** That appropriate Ministry officials should ensure there is a coordinated policy with respect to the use in schools of the various categories of supplementary readers.

**20.** In order that the potential benefit from the increase in book provision mentioned in paragraph 19 is fully exploited, a more meaning-oriented methodology in the teaching of reading is an even more vital necessity.

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# 1. Introduction: English and primary education in Zambia

In Zambia, as in much of sub-Saharan Africa, the ability to read in English is not only of economic use to the country, but also of educational importance to individuals, since it is the medium for almost all primary and secondary schooling. Pupils have to move very quickly from a position of learning to read in English, to one of reading English to learn.

It is widely recognised that the primary school system in Zambia, the foundation of formal education for the few, and the only formal education for the great majority, is in a far from satisfactory condition. The problems are amply documented in *Focus on Learning* (MOE, 1992). There have been indications for some years that levels of literacy in English are unsatisfactory (see Sharma, 1973; Serpell, 1978; Chikalanga, 1991, reported in section 7.4). While this lack of literacy means that some school leavers may be inadequately prepared for life outside school, it also means that many have already lost opportunities, in that reading in English is the very skill which they are supposed to have deployed in school to gain knowledge in other fields.

This project report is an attempt to document how reading in English is taught in primary schools in Zambia and how well the pupils read in English. Because of time constraints, it is a descriptive survey based on five schools and not on a national sample. There is however, no reason to believe that the schools were atypical. The results may serve as a contribution to the information base of those who are developing strategies to provide a better educational foundation for Zambian schoolchildren.

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## 2. Zambia: Primary education

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### 2.1. Structure

Primary education consists of a 7 year programme available to all children between the ages of 7 and 14. Education is free, although in practice parents have to find money for books etc, and, increasingly a "desk fee". The practice of repeating years is said to occur to a limited extent, mainly in grade 6. The school year runs from January to December.

At the end of Grade 7 there is a national examination which selects pupils to go on to secondary schooling. In 1991/92, 12.7% of pupils went on to conventional secondary schools (Grades 8-12), with a further 13.6% going on to basic school (Grades 8-9) (MOE, 1992: Appendix 8). Basic schools are attached to an existing primary school and are generally held to offer "an education that is of inferior quality" (MOE, 1992: 72). For the current structure of education in Zambia, see Appendix A.

### 2.2. Statistics

The following statistics are from *Focus on Learning* (MOE, 1992). They refer to 1990, unless otherwise indicated.

Number of "complete" primary schools (grades 1-7) (1989)	2,957
Number of "incomplete" primary schools (grades 1-4) (1989)	501
Number of classes:	36,542
Total pupil population:	1,459,216
Average class size:	39.9
Total number of 7-13 yr olds:	1,643,853

Girls as percentage of enrolments (1989)	48.3%
Teachers in Primary Schools (No data available on sex of teachers)	
Trained	29,950
Untrained	5,241
Number of primary Teacher Training Colleges: (plus one primary in-service training college)	10

Trained teachers are those that have successfully completed grade 12 (end of secondary school) plus two years Teacher Training College. The percentage of untrained teachers increased from 7.8% in 1986 to 14.9% in 1990.

Most primary schools in Lusaka and many in the urban Copperbelt run a triple shift system for years 1 to 4, and a double shift system for grades 5 to 7. Double shift systems mean that many children in Grades 1 to 4 are being taught less than 3 hours per day.

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## 3. Reading and language learning

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### 3.1. Definition of reading

The definition of reading that is adopted for this report is that it is a deliberate process of looking at and understanding written language. The focus of enquiry is therefore at the basic level (often referred to as functional literacy), and examines the extent to which pupils understand relatively simple texts. The nature of understanding is contentious but I shall take it to be the understanding intended by the writer and likely to be agreed on by a consensus of informed readers.

Such a definition is compatible with the current research-based view of reading, namely that it is a complex interactive process whereby the reader obtains meaning from the text. In order to generate meaning the reader must bring to bear on the text relevant types of knowledge, among which are:

- knowledge of the relevant language
- knowledge of the relevant script and orthographic conventions
- relevant knowledge of the world (eg knowledge appropriate to the topic, to the cultural context and knowledge of relevant text types).

Some implications of this view for the teaching and learning of reading are:

- that learners' language development should be adequate to cope with the text that they are faced with
- that they should be able to relate to the content of the text;

- that they should have an understanding of the nature of the relevant script and orthographic conventions

## 3.2. Second and foreign language learning

Language learning is a process that takes place over time. The extent of learning depends on the duration, amount and richness of the input (ie what the learner hears or reads). Learning is mediated by the motivation and degree of engagement of the learner, and the type of language activities that the learners undergo (ie whether they are repeating phrases, singing songs, listening to the teacher, etc.). No distinction is made in this report between second and foreign language learning.

The initial stages of language learning will not be error-free, but characterised by deviancies due in large measure to deficiencies in input, false generalisations, and interference from the mother tongue. At any stage in learning "fossilisation" may occur - in effect, learning ceases, and the learner's language remains at a level below that of fluent users of the language.

While the implications of these views for English language teaching, and particularly the teaching of reading, in terms of what is the best practice, are not entirely agreed upon, there would be general agreement that the following factors play a role:

- (i) teacher's English language proficiency
- (ii) appropriacy of materials
- (iii) amount of time devoted to the language
- (iii) quality of teaching methodology
- (iv) degree of learner motivation
- (v) class size and general material provision

These factors are further mediated by situational factors that might be crudely summarised as the congruence of the educational operation with socio-cultural norms.

## 3.3. Learning to read in a foreign language

The definition of reading provided above (3.1) indicates that knowledge of the language of the text is essential in helping the learner to learn to read. Such knowledge enables learners to identify words from partial graphic clues, and to guess words through understanding of context, particularly in the early stages. (While it is now widely recognised that fluent readers have automatic recognition of written words, and therefore do not need to guess or "sound out" words, automatic recognition obviously



assumes understanding of what is recognised). The attribution of meaning to the written words is clearly an integral part of reading.

A particularly careful approach is therefore needed with learners who have little knowledge of English if they are to learn to read successfully in the language. Most methods of teaching initial reading (see Appendix B for a summary) assume the learner knows the language; these methods therefore focus upon decoding (ie identification) of the written words. In initial reading of a foreign language (where the learner may not know the language) this can degenerate into mere "transcoding" ie converting the written form into a spoken form without understanding.

## **3.4. The testing of reading**

The testing of reading is difficult, since in reading in "real life" there is normally no observable response. Test techniques are unsatisfactory to the extent that they yield indirect measures of text comprehension. Furthermore all reading test formats tend to interfere with the process of reading. For a discussion of these issues, see Appendix C.

After classroom observation and initial piloting, the test techniques decided upon for this project were a combination of (a) modified cloze, for group administration, and (b) read aloud plus oral questions, for individual administration (see 4.4). These are techniques that are used in many different countries for the assessment of reading ability.

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## 4. Description of the project

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### 4.1. Aims of the project

The aims of the project were:

(i) to investigate reading proficiency in English in primary schools in Zambia. Data for this was collected through two reading tests.

(ii) to report methods used by teachers in rural and urban primary schools in the teaching of reading. Information was gathered through recorded observation of classes.

(iii) to describe resource levels within schools (qualified teachers, class sizes and number of English books). Data was gathered through structured interviews with teachers.

(iv) to characterise the approach to the teaching of reading in teacher training colleges. The information was collected through interviews with college staff and examination of syllabuses.

### 4.2. Project timetable outline

(i) planning and background research (October, 1991)

(ii) initial field trip of one week (November 1991)

(iii) the preparation of data collection instruments and planning for main

visit (March-April 1992)

(iv) the main data collection trip of two weeks (May, 1992).

(v) analysis and writing up (June & November, 1992)

The total time allocated to all phases listed above was 9 weeks.

## 4.3. The initial field trip

**4.3.1.** During the initial field trip in autumn 1991 visits were made to two urban schools and one rural school. Visits were made to Inspectors in the Ministry of Education, to the Curriculum Development Centre, to one Teachers Training College and to the University of Zambia.

### 4.3.2. Data Collection Instruments used in the Initial Trip

**Classroom Observation:** A number of classroom observation schedules were considered. However, they were abandoned as not appropriate to the conditions. Instead, a running record of lessons was made on the spot and they were also recorded on audio tape.

**Reading Tests:** For individual reading aloud the Macmillan Individual Reading Analysis (Vincent and de la Mare, 1990), hereafter referred to as MIRA, was used. For group reading two tests were used: Cloze Reading Tests, Level 1 (Young, 1982), and a slightly modified version of Word Search 1B (Godfrey Thomson Unit, 1986). These tests are intended for British schoolchildren, and while they are not appropriate for other countries it was felt that they would serve as a guide to the preparation of final test instruments.

### 4.3.3. Initial Field Trip: Observation and Testing

Observation and/or testing was carried out in a total of 9 classes as follows:

Year	Schl 1 (urb)	Schl 2 (urb)	Schl 3 (rural)
1	Observe	-	Observe
2	Observe	-	Observe
3	Observe	-	Observe + Test
4	Test	-	-
5	-	Observe + Test	-
6	Test	-	-

#### 4.3.4. Testing of Reading in the Initial Visit.

MIRA (which consists of the pupil reading aloud a series of graded passages, each followed by questions) was administered to two pupils (one boy, one girl) in all classes where "Test" is indicated above. The sessions were recorded. In addition, in Year 6 of School 1, Word Search was administered to 20 pupils (10 boys, 10 girls) and Cloze Reading Tests to 25 pupils (17 boys and 8 girls).

#### 4.3.5 Conclusions from the Initial Visit

- (i) that recording classroom methodology through keeping a running record and audio recording was entirely adequate.
- (ii) that a modified cloze format with deleted words provided was a fairer format than the cloze format (see Appendix C).
- (iii) that a culturally appropriate version of a "read aloud" test should be devised.
- (iv) that it would be desirable to test reading in Nyanja. The reason for this was that poor performance in an English language reading test could be attributed either to low ability in English or low ability in reading. If pupils were to score high in Nyanja and low in English then this would suggest an English language problem.
- (v) that testing of reading should be carried out at years 3, 4 and 6. Testing at years 1 or 2 would be inappropriate since very little achievement would be registered (this does not, of course, mean that no learning is going on in those years). Year 6 was selected as a point by which pupils should be recording reasonable progress.

## 4.4. Final test instruments

- (i) a new series of "read aloud" passages was prepared. They consisted of five graded passages based upon language from the course books followed by questions (see Appendix D).
- (iii) a group reading test was prepared which consisted of a series of short

paragraphs from which 4 or 6 words had been deleted. Above each paragraph was a box which contained the deleted words plus 2 extra (for 4 deletions) and 3 extra (for 6 deletions). The total number of items was 60. This test is referred to as Word Find (see Appendix E for extracted examples). Pupils are familiar with the gap-filling technique from the tests and exercises used by their teachers. In addition the test administration included a practice section which the whole class did together. The texts in which the Word Find items occur were based on language appearing in the English language course books as follows:

Texts for items	1 - 20:	Year 2 or below.
Texts for items	21 - 40:	Year 3 or below.
Texts for items	41 - 60:	Mainly Year 6 or below.

All pupils were asked to attempt all 60 items. It should be noted that control of supposed English language input is difficult as the curriculum is taught mainly through English from year 1 in Zambian primary schools.

(iv) a similar test to Word Find was prepared for Nyanja (referred to here as Nyanja V.01; see Appendix F). It was based on rough translations of the English version, although no claim for equivalence is made, or necessary.

## 4.5. Sample of schools

The tests were administered in two urban schools (in Lusaka) and three rural schools (in the North Eastern Province). This is not a geographically representative sample in that approximately 50% of the Zambian population live in urban areas. This is to be borne in mind in the interpretation of the results. Likewise only 2 provinces out of 9 are sampled. This project is therefore a descriptive survey rather than one based on sampling, a procedure which shortage of time and resources made impossible (a 1.5% sample of grade 4 children alone would amount to over 3,000 children). The schools in Zambia were selected by the British Council and Zambian Ministry of Education officials. A Nyanja (Chichewa) speaking area in the North Eastern province was selected to ensure that the Nyanja reading tests would be appropriate. It might also be claimed that four categories of sample, namely urban central, urban peripheral, rural on-road and rural off-road would have been more suitable. However, precise information on schools within these hypothesised categories was not available.

## 4.6. Data structure for tests

#### 4.6.1. Reading Test: Word Find

This group test was administered by the researcher and/or a Ministry helper. Tests were administered to intact classes if those classes were less than 34. In cases of larger classes a representative sample of 34 or 40 pupils was requested, if possible with equal numbers of girls and boys. Data from the written test was in this way collected from the following numbers of pupils (the schools are referred to by letters, to preserve anonymity):

##### Schools

Year	Sex	Rural				Urban		Total	
		C	D	K	(Total)	J	T	(Total)	
3	Boys	17	6	17	(40)	13	14	(27)	67
3	Girls	22	4	17	(43)	22	19	(41)	84
4	Boys	24	8	17	(49)	17	12	(29)	78
4	Girls	13	10	8	(31)	17	22	(39)	70
6	Boys	12	16	18	(46)	15	18	(33)	79
6	Girls	12	20	15	(47)	15	12	(27)	74
Total		100	64	92	(256)	99	97	(196)	<b>452</b>

#### 4.6.2. Read Aloud Tests

For the read aloud tests the teacher of each class which had done Word Find was asked to select a high ability boy and girl, and an average ability boy and girl from the class. Due to time constraints it was not possible to test 4 pupils from all relevant classes. However, in rural School I (where Word Find was not administered) pupils from Grades 4 and 6 did the read aloud test. The final data structure for the read aloud test was as follows:

##### Schools

Yr	Sex	Rural				Urban		Total	
		C	D	K	I (Total)	J	T	(Total)	
3	Boys	1	2	0	0 (3)	2	0	(2)	5
3	Girls	1	2	0	0 (3)	2	0	(2)	5

4	Boys	1	2	0	1	(4)	2	2	(4)	8
4	Girls	1	2	0	1	(4)	2	2	(4)	8
6	Boys	1	2	1	1	(5)	2	2	(4)	9
6	Girls	1	2	1	1	(5)	2	2	(4)	9
<b>Total</b>		6	12	2	4	(24)	12	8	(20)	<b>44</b>

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## 5. Resources in schools visited

[5.1. Overall impression](#)

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### 5.1. Overall impression

The following descriptions refer only to the 5 schools where testing was carried out in the main visit. These were 3 rural schools in the North East province, and 2 urban schools in Lusaka. With the exception of one urban school, they were, to varying degrees, suffering from lack of maintenance and lack of educational material. As the figures below indicate however, there is significant variation from one school to another. Such books as are enumerated in the following lists are often in a very poor condition.

#### Mean Class Sizes in Schools Visited

Grade	1	2	3	4	5	6	7
Urban	41.3	44.1	47	51.7	65.3	59.3	62.5
Rural	46.3	38	33.8	34.8	33.8	35.3	34
Overall	42.9	42.1	42.8	47	56.4	53.3	56.8

The overall mean size (in terms of numbers of pupils registered) for classes in all 5 schools visited (in 1992) was 48.3 while the mean size nationally in 1989 according to *Focus on Learning* (MOE, 1992) was 39.9. The difference may be accounted for by the 3 year gap, or possibly the nature of the schools selected.

#### English Coursebooks per Pupil

Grade	1	2	3	4	5	6	7
Urban	0.60	0.87	0.34	0.61	0.36	0.25	0.14



Rural	0.64	0.41	0.01	0.10	0.54	0.40	0.62
Overall	0.61	0.74	0.28	0.50	0.37	0.34	0.12

*Focus on Learning* (MOE, 1992) presents a rather more optimistic picture, saying "On the presumption that all schools have received the supplies of books destined for them it would seem that needs are being met in English in Grades 1-3 and 5" (5.18). Annex 3-1 of *Focus on Learning* provides figures for book production from 1988 to 1991, and also enrolments for 1990. On these figures, the number of books per pupil nationally is:

Grade	1	2	3	4	5	6	7
	0.65	1.28	1.53	-	1.03	0.27	0.46

There is considerable discrepancy between the 5 schools visited and the *Focus on Learning* figures with respect to Grades 2, 3 and 5. Possible reasons are that not all books were distributed, that some books were not usable by the time of our visits in 1992 (book life is generally estimated at 3 years) or that the schools visited were not representative. Whatever the reasons, the general view of educators in Zambia seemed to be that it is difficult to obtain accurate data on usable books actually in schools.

Two further points may be noted concerning books. The first is that a few pupils have their own personal copies which do not enter into the figures above. The second is that in theory book sets could be moved from class to class within. Grades thus giving most pupils access to the books. This does not appear to happen partly because of logistic problems, partly because of the understandable desire of teachers to husband their stock of books.

## 5.2. Description of individual schools

### School D (rural)

The school is in an open position on the outskirts of a village. It is dusty, windswept and dilapidated. The peeling legend "Learn to obey" can be made out on the concrete flag-pole base at the entrance to the school. The school consists of 3 blocks, one of which is still incomplete, and not yet in use. There are no doors, nor windows in any of the blocks. It has 448 pupils and 40 desks. The school has no security; the headmaster reports that much has been stolen eg telephone wire; doors and windows; all tools and material from the carpentry room.

Electricity: none

Water: One well, very low at the time. Windlass, rope and bucket had been stolen.

Accommodation: house for headteacher, plus houses for two teachers near the school. Others housed in the village.

<b>Grade</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>Total</b>
Boys	50	40	43	26	20	41	21	241
Girls	35	37	42	31	20	27	15	207
Total	85	77	85	57	40	68	36	448
Classes	2	2	2	2	1	1	1	11
AvClSze	43	39	43	29	40	68	36	
EngBooks	45	0	0	0	30	41	28	
NyanjaBks	0	0	0	0	20	10	10	

No of teachers: 14 (3 untrained, at grades 3 and 4)

When we visited 10 out of 38 pupils registered in class 3A were present, and 18 out of 30 in 4A.

### **School C (rural)**

The school blocks were in an extremely dilapidated condition, with most windows broken. There were desks for 50% of pupils.

Electricity: no

Telephone: no

Water: One well, but drying. No bucket or chain.

Accommodation: Shortage of housing reported to have led to serious conflict between teachers. Six houses for 6 teachers; 4 other teachers share with them.

<b>Grade</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>Total</b>
Boys	48	37	19	28	16	21	12	181
Girls	49	29	27	18	23	7	15	168
Total	97	66	46	46	39	28	27	349

NoClasses	2	2	2	1	1	1	1	10
AvClassSize	49	33	23	46	39	28	27	
NoEngBks	50	25	15	15	26	10	16	
NoNyaBks	0	0	0	0	0*	0*	0*	

Teachers: 11; 5 untrained teachers at grades 2, 3 and 4.

\*: "a few supplementary readers"

### School K (rural)

School buildings in neglected condition but glass in most windows and doors intact; - 80% of pupils reported to have desks.

Electricity: no

Telephone: no

Water: One well; chain, bucket and windlass missing.

Accommodation: Houses for Head plus 5 teachers; others in village.

Grade	1	2	3	4	5	6	7	Total
Boys	52	46	36	44	20	22	23	243
Girls	44	39	36	27	36	23	16	221
Total	96	85	72	71	56	45	39	464
NoClasses	2	2	2	2	2	2	1	13
AvClassSize	48	43	36	36	28	23	39	
NoEngBks	83	72	0	2	17	5	19	
NoNyaBks	0	13	0	0	0	0	0	

Teachers: 14; all class teachers are trained; 1 domestic science teacher is untrained.

### School J (urban)

A large school in a reasonably well off area of Lusaka.

The blocks are in fair condition, glass in most windows, doors intact. The school is surrounded by a fence. Classrooms have concrete floors, blackboards, and are well-lit. There are offices for staff, secretaries and head. The pupils all wear uniform.

Telephone: Yes

Electricity: Yes

Water: Yes; several taps

<b>Grade</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>Total</b>
Boys	148	134	174	184	194	218	190	1242
Girls	101	135	144	148	166	176	179	1049
Total	249	269	318	332	360	394	369	2291
NoClasses	6	6	7	7	6	6	6	50
AvClassSize	42	45	45	47	60	66	62	
NoEngBks	240	400	150	350	200	180	100	
NoNyaBks	0	0	200	75	24	15	70	

Number of teachers: 40 all trained.

### **School T (urban)**

A township school on the outskirts of Lusaka. Surrounded small workshops, and dilapidated buildings. The school is protected by a high breeze block wall, and a pair of sheet metal gates, with a security guard. Inside the compound the blocks are well built and well spaced, with concrete floors, desks for about half the pupils, doors and windows. There is adequate play area between the blocks, and vegetable plots. The school has an office for secretarial staff and the Head. Telephone: yes

Electricity: originally yes, but fittings have been stolen. Water: 13 taps

Accommodation: housing provided for the Head, plus two teachers.

<b>Grade</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>Total</b>
Boys	123	139	130	162	193	151	205	1103

Girls	123	121	163	178	215	166	176	1142
Total	246	260	293	340	408	317	381	2245
NoClasses	6	6	6	6	6	6	6	42
AvClassSize	41	43	49	57	68	53	64	
NoEngBks	60	60	60	60	60	0	6	
NoNyaBks	0	0	0	0	10	10	10	

No Teachers: 38; all trained.

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## 6. Approaches to reading in Zambian primary schools

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### 6.1. The English syllabus

The Zambia Primary Course (ZPC) English course was developed from 1966 to 1973. It was a rather cumbersome course, consisting of separate Teacher Handbooks for Language, Reading and Writing for each term, together with a pupil's Reader for each term. The pupil's Reader consisted of reading texts, with few exercises or activities. (Recent printings have consolidated the 3 pupils' Readers for each year into one volume.) In addition there were 3 or 4 supplementary Readers for each year.

The ZPC English course is currently being replaced by the new Zambia Basic Education Course (ZBEC) for primary English. After piloting, the Grade 1 books were introduced in 1991, and Grade 2 books in 1992. The whole exercise is due to be completed in 1997 when the Grade 7 books will be introduced. The new course consists of only two Teacher's Guides per year, and two or three pupils' books. Both teacher and pupil books in the new course are integrated, dealing with oral work, reading and writing, and are generally felt to be more "communicative".

The amount of time spent on English as from 1991 in Grades 1 to 4 is 4 hrs 30 minutes per week. In Grades 5 to 7 it is 4 hours 40 minutes (previous corresponding figures are 7 hours 30 minutes and 6 hours). However, all subjects apart from Zambian languages and Religious Education are taught through the medium of English, (although there are local variations, and teachers use the mother tongue to varying degrees especially in the lower grades) so that the input of English is in principle considerable.

## 6.2. The approach to reading

**6.2.1.** The principal approach to reading in the old Zambia Primary Course (ZPC) is the "look and say" ("whole word" and "whole sentence)" method. Phonics are introduced in Grade 2, but the phonic approach is given little prominence (see Appendix B for a description of these methods).

During the first term teachers are told to take pupils through "the essential pre-reading stages involving recognition, discrimination and left-to-right eye movements. The children quickly pass on to the reading of sentences, words, and finally to the readers themselves, so that by the end of Grade 1, most children have completed the first four readers of the Zambia Primary Course". (ZPC Teachers Handbook, Grade 1, Term 1.)

The class readers for Grades 1 and 2 are built around the sentence method. "The children are drilled in the story sentence by sentence and children memorise these sentences by heart" (Kapembwa, 1990: 27). The sentences in the readers are structurally graded and overwhelmingly consist of descriptive language eg "The ball is green" "Mulenga is kicking the ball". Such sentences make for rather boring text. They also provide an inadequate model for the type of transactional language which would allow pupils to personalise their utterances.

Beyond Grade 2 the methodology of reading follows much the same pattern, namely a teacher-led discussion of the picture accompanying the text, a list of new words for the text, reading aloud of the text by teacher and pupils (often choral), followed by oral and written comprehension questions. Reading aloud by the teacher is phased out in Grade 4, and pupils read silently. Picture discussion is phased out in grade 5. The texts increase in complexity and size with each grade, but the basic pattern of reading and comprehension questions remains.

**6.2.2.** In the new Zambia Basic Education Course "the main method used in Grade 1 is the "look-and-say" method, as in the former course, but phonics... is also introduced in a very simple way" (Grade 1, Teacher's Guide A, p 72). The language presented, however, is more varied, and the activities in the Pupil's Book seem more interesting. There is less drilling of sentences, and more attention to reading as a "meaning making" process.

Beyond Grade 1 there are a variety of reading aims specified in the new syllabus in terms of language competence, text types, reading purposes, fluency and personal responses. The general aims, set out in a working draft (*Teaching Syllabus: Functional Objectives*, mimeo nd: p 7) are that by the end of Grade 7 pupils should be able to:

*1. understand the different types of reading material which they are likely to meet both inside and outside school i.e. texts and passages in the Pupils' Books and graded supplementary readers reading materials in real life eg signs, instructions etc reading materials related to other subjects*

*2. have a reading vocabulary of at least 2500-3000 words, including a basic sight vocabulary of names, signs and labels needed by the learner to operate in a modern society and be able to read with understanding a wide variety of narrative, functional and instructional materials*

*3. read for pleasure and for specific information*

*4. read at a speed appropriate to their purpose (a speed of at least 100 words a minute is recommended for reading for pleasure by the end of Grade 7)*

*5. begin to read critically and make judgements on the materials they read*

These would appear to be achievable and worthwhile objectives. However, in order to have their full impact they will not only have to be incorporated effectively into the materials, but also reflected to some degree in the Grade 7 examination, which clearly has a powerful washback effect upon teaching. For specific reading objectives for Grade 7 in this draft working syllabus see Appendix M.

**6.2.3.** An innovation in reading methodology in tune with the importance of reading for meaning is the "Language Experience Approach" outlined in ZBEC Teacher's Guide A Resource Book (pp 99-103). Since this method depends on pupils making up sentences which the teacher then writes down it poses problems for beginners with little English. The solution suggested is that pupils use the mother tongue, and that this should then be translated and written down by the teacher. I am not aware of any Zambian teachers who have used the approach. A similar approach (based on *Breakthrough to Literacy*, Mackay et al, 1979) has been used for initial reading in indigenous languages in South Africa and Botswana.

## **6.3. The approach to reading in teacher training**

Students in teacher training colleges follow a heavy programme (typically forty-five 40 minute periods per week) devoted largely to drilling in the contents and methods of the



ZPC Teachers Handbooks. The syllabus for all subjects in the ten teacher training colleges was in force from 1983 until the early 90s. New teacher training syllabuses are currently being introduced along with the new primary school syllabuses. The revised draft of the *Primary Teacher Training Colleges English Syllabus* (CDC, 1991) was superseded in 1992 by a new syllabus which was, according to college lecturers to be published in mid-1992.

The general objectives of the 1991 syllabus with respect to reading are that students should by the end of the course "be able to explain the methods and conduct effectively the reading activities set out in the ZPC English component and other methods and activities suggested by the colleges" (p 5). It includes general principles whereby students should be able to:

- *define the nature and processes of reading*
- *explain the psychology and physiology of reading*
- *list the aims and purposes of reading*
- *interpret and apply the principles of reading readiness*

It then goes on to list specific techniques (for the ZPC), then topics in remedial reading and in the testing and evaluation of reading. This is done briefly and generally, the whole occupying less than a page.

In practice, however, the college lecturers who were interviewed (7 in Kitwe, 4 in Chipata) felt that relatively little attention was given to general principles (ie reading processes and background information) in the training courses. The main emphasis was upon the methodology of teaching reading and imparting specific techniques prescribed for the ZPC course. Thus, although the Preface to the new *Primary Teacher Training Colleges English Syllabus* encourages college lecturers to be flexible, the colleges' emphasis upon rigid curriculum objectives and primary school content means that teachers tend to reproduce in the classrooms what they were drilled in the colleges.

There is a clear danger that teachers prepared in such a way will tend in subsequent teaching not to reflect sufficiently on the effect of their practices. Thus if their techniques for teaching reading are ineffective (as tests results suggest they are for many pupils) teachers will not have been prepared by their training to modify these practices. Likewise, a rigid approach in colleges means that teachers may not have been prepared to be flexible in their response to occasional problems that individual children may face. In brief, "the development of problem-solving skills, essential to the student who is to cope with difficult and diverse classroom conditions, is neglected" (MOE, 1992: *Focus on Learning*, 10.4).

Inservice training for teachers is said to be sporadic, although there are initiatives under

way, such as the establishing of resource centres, which may affect the situation. Transport and accommodation costs are cited as the main obstacles to systematic inservice training.

## 6.4. Observation of reading lessons

**6.4.1.** On the main data collection trip a total of 6 lessons were observed, which together with the 7 observations of the first trip, make a total of 13, distributed as follows:

Year	No of Observations		
		(Urban)	(Rural)
1	4	(3)	(1)
2	3	(2)	(1)
3	4	(2)	(2)
4	1	(1)	(0)
5	1	(1)	(0)
6	0	(0)	(0)
7	0	(0)	(0)

These observations were recorded, and a running record kept of pupil and teacher behaviour. The lessons will be broadly characterised here, at the risk of being unfairly selective in what is described. Schools I (rural), U, L and H (urban) are schools which were observed, but where no testing was carried out. It should be noted that untrained teachers are not allowed to teach Grades 1, 5, 6 or 7, which means they are concentrated in years 2, 3 and 4, when children need great help with establishing literacy.

**6.4.2.** Year 1 (Schools J, T, I and H) Teachers: all teachers in these lessons were trained.

Schools J, T and H were all engaged in pre-reading activities. All 3 classes (42, 36 and 42 pupils present respectively) were lively, with children drawing, and walking around pointing to colours and objects. The teachers gave careful attention to the presentation of meaning, and were responsive to the pupils' difficulties. In all three schools pupils were sitting in groups around tables or desks.

Both the J and H teachers took advantage of this to give different groups different tasks,

then moved from group to group giving individual attention. The pace of the lessons seemed well matched to the children's attention span, and they were not overloaded with language. There was some attention to phonics in School H. There was a limited amount of chanting. Most of the children seemed absorbed in the lesson most of the time. These lessons were probably the best I observed during my visits. Schools H and T were visited in May 1992 and were using the new ZBEC material. However, school J (visited in November 1991) was using the old ZPC material and showed how that too could be used in the hands of a competent teacher. However, schools J and H were clearly above average in their material provision. All three teachers also seemed to have a good command of English.

The School I lesson (29 present) seemed less successful. The teacher was using the old ZPC material, but the problems cannot be attributed solely to the material. The teacher spent the first 15 minutes drilling with 6 flashcards and the blackboard. Children repeated in a combination of choral groups, as the teacher moved from words to sentences and back again with no apparent direction. The teacher then wrote the sentences onto the board and a further 5 minutes was spent with the children reading them yet again, in groups or individually. One unfortunate pupil, who had clearly learned the sentences off by heart, was misguided enough to look at the ceiling as he repeated "They are cooking". The teacher issued a rebuke "When you say it you have to look at the words. That is what reading is." Those two sentences typify all that is wrong with this approach to reading.

#### **6.4.3. Year 2 (School J, I and T)**

Teachers: School J and T, trained, I untrained.

Lessons in schools J and I (47 and 33 present respectively) followed much the same pattern. Words were written on the board and the teacher read them aloud. The class, and various individuals repeated them. The words were then further practised using flashcards. They were then used in sentences which were written on the board, and the children copied them. There was no attention to presenting or to checking on the pupils' understanding of the meaning of what was said or written. The school I pupils finished their writing early and the teacher took out the flashcards again and spent the last five minutes in repeating much the same as he had done earlier in the lesson.

The class T teacher (37 present) gave a motivating presentation of meaning using objects in a bag, and also varied the pace and activities throughout the lesson. Pupils read from flashcards, from the board, did a gapped reading exercise and also practised handwriting.

#### **6.4.4. Year 3 (School J, I (twice) and U)**

Teachers: all trained

All 4 of these lessons followed the pattern that is established for the reading class in much of ZPC, namely explaining new words or discussing a picture, followed by reading and answering questions. The problem is, as in these classes, that the explaining of words can degenerate into merely repeating words, while the discussion becomes a question and answer session where the teacher addresses the best pupils or answers the questions him/herself. The reading is largely repetitious chanting. Thus in School I (May 1992) a class of 45 spent the entire lesson on a text about hippos and crocodiles, but at the end of the lesson only 5 pupils seemed to know what a hippo was (The text for this lesson appears in Appendix G, and the transcript of the lesson in Appendix H.) School J had 46 present, and School I (Nov 1991) had 25.

An illustrative episode occurred in School U (with 73 present, by far the largest class observed) where the teacher, suddenly called a halt to the choral reading from the books, and instructed the children "Now read silently!" They stared at her seemingly at a loss. She shouted at them "Read silently! Don't look at me!" Still they could not take their eyes off her, and the more she shouted, the more transfixed they became. The situation was only resolved when she decided to give out the work cards, at which point they naturally began to read silently.

#### **6.4.5. Year 4 (School I)**

Teacher: trained

After brief repetition of new words, this class of 33 repeated in chorus and individually a text that had been written on the board. Oral questions then followed which the teacher answered himself for the most part. Only 3 pupils volunteered answers. Despite the fact that the pupils seemed to have problems in answering questions about the small section of the story which was written on the board, the teacher continued by reading twice from the book (which only he had) the whole story (see Appendix G for the text written on the board). The teacher then asked children questions on his oral reading which, predictably, they were entirely unable to answer. During the reading only some 6 pupils appeared to be attending to the teacher. This lesson was little more than a listening test from which pupils appeared to have little opportunity of learning.

#### **Year 5 (School L)**

Teacher: trained

The fifth year class in School L had 29 pupils present. The lesson was very much in the traditional mould, but executed by a teacher with a concern for the pupils' problems,

and with the ability to help them overcome those problems. It began with a series of questions about the picture. Pupils were nominated to answer. If they could not do so the question was rephrased more simply, and if necessary the pupil was helped to formulate an answer. The pupils then went on to read the text, first following as the teacher read, then reading silently by themselves. Further questions were asked including a number which did not appear in the book, and also "Why?" questions, which had been noticeable by their absence in most other lessons. Pupils who appeared to be confused (as one was by the difference between "knew" and "know") received clear explanation and exemplification. Pupils were finally asked to write the answers to the questions in their books; while they did so the teacher circulated among them giving individual attention. It was not an exciting lesson, but with a sense of purpose, and delivered by a teacher who was aware of her pupils.

## 6.5. Comments on observations

This was a group of "mixed ability" teachers. Although the most skillful were trained, there were also some trained teachers who did not seem particularly skillful. Those teaching in the Year 1 classes were competent and seemed to have an interest in their work. Many of the other lessons, however, were characterised by the teacher going through the motions prescribed in the Teacher's Guide but without any apparent understanding of the purpose. A large number of pupils appear to flounder through lessons in a miasma of incomprehension. One has the impression that they expect to be mystified by the educational experience.

The greatest single step forward for the teaching of reading in English in Zambia would be for the teachers to realise that reading does not simply consist of saying words while looking at them, but that it is concerned primarily with apprehending meaning. Ensuring that pupils understand sufficient language to make sense of what they are reading is crucial, and so is having a range of techniques to check on understanding. The reading lesson has for many teachers become an occasion for little more than "reading aloud" without understanding.

I would not condemn reading aloud out of hand. There may be roles for it in the early stages, possibly as far as Grade 3, and in certain cases beyond. However, teachers need to ask why it is being done on each occasion. Purposes put forward by those in favour of reading aloud include:

(a) for individual reading aloud:

- (i) to check that the individual is able to decode
- (ii) to give the individual practice in decoding

(b) for individual and group reading aloud:

- (iii) to practice pronunciation
- (iv) to reinforce grammatical patterns
- (v) to reinforce recognition of written words

(c) for group reading aloud

(vi) to enable the individual to carry out (ii) to (v) without being the focus of the teacher's attention

(vii) to carry out (ii) to (v) more economically

(viii) to provide a variety of activities in the classroom

The only purpose where reading aloud is crucial is (i). In all other cases there are ways other than reading aloud of achieving the same object. Reading aloud may have a role in these other functions, but should not be the exclusive means used. Furthermore, whatever the purpose of reading aloud, pupils should always understand what they are saying. A synchronised reading performance by a class is no guarantee of understanding or of learning. At its worse excessive choral repetition is a "reading like" activity rather than reading itself; the children say appropriate words from memory - the same words as they would have said if they had really been able to read - but for many pupils this performance masks a lack of real competence. Reading aloud should be kept within limits and used for clear purposes, rather than merely a time filling device.

However, the main point to be made is that irrespective of the degree of reading aloud in a class, attention to meaning and understanding is essential. It is to be hoped that the new ZBEC materials will help to reintegrate reading and understanding in the many classrooms in Zambia where it is sorely needed.

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## 7. Results of English reading test "Word Find" and Nyanja test

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### 7.1. The interpretation of results of word find

The results of Word Find are difficult to interpret in an absolute evaluative sense. One cannot say whether the results indicate that the pupils concerned are "good" readers or "bad" readers relative to any external standard since there are no standardised tests of reading available for the population. It would, obviously, be inappropriate to assess pupils in Zambia on tests standardised in Britain.

One approach to establishing guide lines for the interpretation of results is to ask the pupils' class teachers to examine the tests and to estimate what they feel the average pupil will get (not should get) on the 60 item test. This was done, with the following results:

#### Pooled Teacher Judgements on Word Find

	Urban	Rural
	Number of Teacher	Number of Teacher
	Judgements: 5	Judgements: 6
Year	Mean Judgement	Mean Judgement
3	20	21

4	32	21
6	53	42

While this procedure indicates the teachers' judgement of the pupils' ability it does not establish any relationship between score and degree of comprehension. Indeed any attempt to establish such a relationship is ultimately subjective. However, while it would be wrong to arbitrarily fix a test score below which there is no comprehension, and above which there is comprehension, it is permissible to identify a score below which there is inadequate comprehension. (Such a procedure does not necessarily imply that scores immediately above the point selected constitute adequate comprehension.)

Since the three 20 item subtests in Word Find are aimed at three different years (3, 4 and 6) and each subtest is based on the language in the relevant course book (and accepted as such by the teachers), then I would suggest that to score less than 40% on a subtest (ie less than 8 out of 20 items) indicates inadequate reading on that subtest. Obviously setting criterion measures in a subjective manner may be criticised, but an "inadequate comprehension" point of 7 or less out of 20 for these subtests appears to be a generous judgement (and one supported by all British colleagues and Zambian teachers who saw the tests). It would seem difficult to maintain that a person who scores 7 or less out of 20 in these subtests has adequately comprehended them.

In examining the results then, we need to bear in mind the different sources of the scores (in other words which of the three subtests, namely items 1-20, 21-40, 41-60 the correct items come from). The reason for this is that random completion of the items would yield by chance a score of two and two thirds on each of the three 20 item subtests, making a total of 8 for the test as a whole (Department of Applied Statistics, Reading University). For pupils scoring close to 8 then, one should look at where those correct items come from. If they are concentrated in the first twenty items, then we might imagine a slow reader, but one who is giving some evidence of comprehension. If the correct answers are randomly scattered throughout the 60 items, then it is likely that the pupil is guessing. A full description of the Word Find results appears in Appendix I.

## 7.2. Results by school and year

**7.2.1.** The results by school and year are provided in Table 1. Schools J and T are urban schools in Lusaka. Schools C, D and K are rural schools in the North East province.

**Table 1: Results by Year and School, Zambia**

OBS	YEAR	SCHOOL	N	MEAN	SD	MAX	MEDIAN	MIN
1	3	C	39	2.2051	2.1665	7	1.0	0
2	3	D	10	2.8000	2.3944	6	1.5	0
3	3	J	35	13.7714	10.9788	43	11.0	1



4	3	K	34	3.6176	2.8921	11	3.0	0
5	3	T	33	0.9697	0.9180	3	1.0	0
6	4	C	37	7.3784	3.5540	14	7.0	1
7	4	D	18	6.9444	7.0166	26	6.0	0
8	4	J	34	21.7647	15.8861	53	15.5	3
9	4	K	25	11.7200	7.3230	28	8.0	2
10	4	T	34	7.6471	3.9380	16	7.0	2
11	6	C	24	18.8750	10.4354	41	17.0	1
12	6	D	36	25.1944	10.7247	46	27.5	4
13	6	J	30	45.3667	9.2270	57	46.5	11
14	6	K	33	25.7879	8.5138	48	27.0	5
15	6	T	30	24.2333	14.1267	60	24.5	3

### 7.2.2. Teacher Estimate Scores and Actual Mean Scores

The pooled judgements of the 5 urban teachers (for urban pupils) and 6 rural teachers (for rural pupils) compared with the actual school mean scores (to the nearest whole number) were:

ESTIMATES			ACTUAL MEANS				
Year	Urban	Rural	Urban	Urban	Rural	Rural	Rural
	Tchrs	Tchrs	Sch J	Sch T	Sch C	Sch D	Sch K
3	20	21	14	1	2	3	4
4	32	21	22	8	7	7	12
6	53	42	45	24	19	25	26

It is noticeable that the teachers' estimates are well above the actual scores achieved for their category of pupil. This is particularly noticeable for Years 3 and 4. Urban School J is the only school that approaches the teachers' pooled judgement, and is in fact comparable to the estimate of rural teachers for their own pupils. From this one may conclude either that teachers are not aware of their pupils' limitations, or that, despite the instructions, they estimated what they considered the pupils should score, rather than what they would score.

## 7.3. Subtest scores

7.3.1. Looking at overall scores can be misleading because of the possibility of pupils scoring 8 correct by random completion. It is more instructive to look at the breakdown of scores by subtest. Each subtest, it

will be recalled, is based on the material covered in coursework as follows:

			<b>Material from:</b>
Subtest 1	Items 1-20:	Year 3	(Years 2 and below)
Subtest 2	Items 21-40:	Year 4	(Years 3 and below)
Subtest 3	Items 41-60:	Year 6	(mainly Years 6 and below)

### 7.3.2. Subtest 1 (Items 1-20)

**Table 2: Scores on Items 1 - 20 by School and Year**

OBS	YEAR	SCHOOL	N	MEAN	SD	MAX	MEDIAN	MIN
1	3	C	39	1.7692	1.92575	7	1.0	0
2	3	D	10	2.8000	2.39444	6	1.5	0
3	3	J	35	8.6286	6.32030	20	7.0	0
4	3	K	34	3.0294	2.22227	8	2.5	0
5	3	T	33	0.9697	0.91804	3	1.0	0
6	4	C	37	4.9730	3.31232	12	5.0	0
7	4	D	18	5.7222	5.62354	17	4.0	0
8	4	J	34	11.0000	6.89312	20	11.0	1
9	4	K	25	6.0800	5.29874	17	3.0	0
10	4	T	34	4.1176	2.23965	9	4.0	0
11	6	C	24	9.4583	5.14130	19	11.0	1
12	6	D	36	13.0833	4.85431	20	14.0	3
13	6	J	30	18.4667	2.73840	20	19.0	5
14	6	K	33	13.6061	3.71601	18	14.0	3
15	6	T	30	12.6333	6.15032	20	14.5	2

If it is accepted that to score less than 8 on one's "relevant" subtest or those below, indicates less than adequate comprehension, then the mean scores on the first 20 items for Year 3 in all schools except School J give cause for concern in that they are well below 8. In fact, with the exception of Schools J and K, none of the *maximum* scores for Year 3 on these first 20 items is over 7.

Leaving aside School J, examination of individual scripts reveals that of a total of 116 pupils in the other four schools' Year 3 classes only 1 pupil (the top scorer in School K) scored 8 or more on the first 20 items. The figure for School J was 16 pupils out of 35 scoring 8 or more. On this evidence about 85% of

all Year 3 pupils tested do not appear to have adequate reading comprehension in English at this level.

The situation is little improved in Year 4 where again only School J has a mean of over 8 on the first 20 items although the maximum scores for all schools are well above 8, indicating that certain individuals are coping adequately. In all, 43 Year 4 pupils (including 20 from School J) out of a total of 148 scored 8 or over on this first subtest. This suggests that 70% of Year 4 pupils do not have adequate comprehension at this level.

It is only when we look at Grade 6 that the mean for each school is above 8 correct items. In all 103 out of 153 scored 8 or over on this section suggesting that 23% do not have adequate comprehension at this level.

### 7.3.3. Subtest 2: Items 21-40

**Table 3: Scores on items 21 - 40 by School and Year**

OBS	YEAR	SCHOOL	N	MEAN	SD	MAX	MEDIAN	MIN
1	3	C	39	0.3590	0.77755	3	0.0	0
2	3	D	10	0.0000	0.00000	0	0.0	0
3	3	J	35	3.4286	4.77300	16	2.0	0
4	3	K	34	0.3529	1.15161	6	0.0	0
5	3	T	33	0.0000	0.00000	0	0.0	0
6	4	C	37	1.5405	1.32486	5	1.0	0
7	4	D	18	0.8889	2.24628	9	0.0	0
8	4	J	34	7.2647	6.40695	20	6.5	0
9	4	K	25	2.4000	2.56580	10	2.0	0
10	4	T	34	2.1765	1.74895	6	2.0	0
11	6	C	24	5.5000	3.77636	13	5.5	0
12	6	D	36	7.5556	4.99396	18	8.0	0
13	6	J	30	16.7000	3.34406	20	17.0	6
14	6	K	33	8.0000	4.01559	18	8.0	0
15	6	T	30	7.5667	5.03562	20	7.0	0

For these 20 items (21-40) none of the Year 4 mean scores are over 8, although School J is close. Examination of individual scores shows that in all 17 Year 4 pupils (including 15 from school J) scored 8 or over on this subtest out of a total of 148. Again this suggests inadequate comprehension on the part of 88.5% of Year 4 pupils tested, on material which is intended to be appropriate for their level.

In fact, only Year 6 in School J has a mean score of over 8 on this subtest. However maximum scores in all Years 6 are well over 8, and inspection of individual scores reveals that 87 out of 153 scored 8 or over, suggesting that only 43% of Year 6 pupils have inadequate comprehension on this subtest.

Year 3 pupils, as one would expect, have scored extremely low.

### 7.3.4. Subtest 3: Items 41-60

**Table 4: Scores on items 41 - 60 by School and Year**

OBS	YEAR	SCHOOL	N	MEAN	SD	MAX	MEDIAN	MIN
1	3	C	39	0.0769	0.26995	1	0.0	0
2	3	D	10	0.0000	0.00000	0	0.0	0
3	3	J	35	1.7143	2.12231	7	1.0	0
4	3	K	34	0.2353	0.78079	4	0.0	0
5	3	T	33	0.0000	0.00000	0	0.0	0
6	4	C	37	0.8649	1.47502	6	0.0	0
7	4	D	18	0.3333	1.02899	4	0.0	0
8	4	J	34	3.5000	4.52769	15	2.0	0
9	4	K	25	3.2400	2.71232	11	3.0	0
10	4	T	34	1.3529	1.47468	5	1.0	0
11	6	C	24	3.9167	2.68517	9	3.5	0
12	6	D	36	4.5556	2.43128	11	4.0	0
13	6	J	30	10.2000	4.55162	17	11.0	0
14	6	K	33	4.1818	2.49317	12	4.0	0
15	6	T	30	4.0333	5.00678	20	3.0	0

For the last 20 items (41-60) only Grade 6 in school J has a mean of over 8, although yet again individuals in other schools appear to be coping, notably one boy in School T who scored full marks on the test (and 58 on the Nyanja test). Altogether 40 Year 6 pupils (including 24 from school J) scored 8 or over on this subtest, suggesting that some 74% are having difficulty with comprehension at this level.

Year 3 scores are very low on this section, as one would predict, while only 8 Year 4 pupils (2 from school K, 6 from School J) have 8 or over.

## 7.4. Comments on word find test results

The majority of pupils in Year 3 and Year 4 appear to have inadequate comprehension according to tests which are based on their course books, and which teachers judged they should be able to cope with. Approximately three quarters of Year 6 pupils are having difficulty with comprehension of material judged to be at their level, although most appear to be able to cope adequately with material from Years 3 and 4. However it is difficult to see how the majority could learn through reading in English in their other subjects, as they are supposed to be doing. It is also likely that the majority of Grade 6 pupils will be unable to improve sufficiently over the next year to have any chance of a reasonable performance in the Grade 7 leaving examination, which appears to make far heavier demands on their English reading ability than does Word Find.

These results are in line with earlier research carried out in Zambia. Serpell (1978) points out that in McAdam's 1973 comparative study of English medium (ZPC) versus Zambian language medium classes, the English test scores were bimodally distributed with about half the English medium grade 4 pupils scoring as poorly on the English tests as the Zambian medium pupils. Serpell comments that "the gross retardation of this large group of ZPC pupils seems to be due to a failure in learning to read in English" (Serpell, 1978: 433).

Sharma (1973) administered a 40 word recognition test in English to 3,298 grade 3 children (a 5% sample). The words were drawn from ZPC coursebooks at grades 1, 2 and 3. Only 4.15% could read all the words correctly, while 5.36% could not read a single word. Only 17% of these grade 3 children managed to read all the grade 1 words correctly, while only 7.2% could read all grade 1 and 2 words correctly.

Chikalanga (1990) describes a study by the English Department of the Kitwe Teachers' College which in 1973 examined 583 grade 5 children on a test of 100 words randomly selected from grades 1 - 5 of the ZPC books. The conclusion was that "there is a large group of very poor readers in most classes and they are unlikely to be able to cope with the English course of the New Zambia Primary Course nor be able to do much of the work in other subjects" (Chikalanga, 1990:69).

It is clear that the overall results in the present study, weak though they are, receive a boost from the presence of School J. If this school is unique, then the picture in Zambian primary schools overall is extremely bleak. The opinion of many experts in Lusaka was that the school is good, but not the only one of its quality.

## **7.5. Results of Nyanja reading test, Nyanja V.01**

While it would be inappropriate to go into detail as to the relative facility of the Nyanja test and the English test, or the relative difficulty of the Nyanja subtests in comparison with each other, it is worth noting the actual scores on the Nyanja test compared with the estimates. It is also of interest to compare the results and examine the nature of the correlation between the scores in English and the scores in Nyanja of the same pupils.

Only 1 teacher estimated urban scores in Nyanja, and 5 teachers estimated rural scores. Means are given to the nearest whole number. The test contained 60 items.

### Teacher Estimate Scores for Nyanja. V01

ESTIMATES			ACTUAL MEANS				
Year	Urban	Rural	Urban	Urban	Rural	Rural	Rural
	Tchrs	Tchrs	Sch J	Sch T	Sch C	Sch D	Sch K
3	30	21	6	2	4	1	2
4	40	20	10	5	8	10	3
6	53	35	16	17	20	24	31

Again the actual scores are far below those predicted by the teachers. It appears that School J in Year 6 is no longer superior. This is not surprising in view of the fact that some two thirds of pupils did not claim Nyanja as a home language. Moreover, my information was that Zambian languages are in practice largely ignored in Lusaka schools.

These results indicate that a substantial number of rural pupils in Year 3 and 4 appear to have great difficulty in reading Nyanja (which nearly all claimed as their mother tongue).

It would seem then, that a great number of Year 3 and Year 4 pupils in Zambia have inadequate reading ability in both English and their mother tongue. These results would certainly not lead one to conclude that the children can actually read, but perform badly in English only because of language problems. It is possible that the variety of Nyanja used in the test was unfamiliar to the children, but no teacher made any comment to this effect.

It seems clear that the policy of instruction in English from Grade 1 has a negative effect upon literacy in the mother tongue. The situation in Malawi, where Chichewa is the medium of instruction for the first 4 years, suggests that children can achieve reasonable literacy in their mother-tongue with no adverse effect on their English. On the current Zambian policy, I would endorse the views expressed in *Focus on Learning* (MOE, 1992), paragraph 5.4:

*"Too early an emphasis on learning through English means that the majority of children form hazy and indistinct concepts in language, mathematics, science and social studies. A number of studies in Zambia have confirmed that children's subsequent learning has been impaired by this policy. The use of English, to the exclusion of local languages, as the medium of instruction in schools leads to a downgrading of these languages.*

*The "English equals education" mentality does little foster an appreciation for one's cultural heritage."*

## 7.6. Correlation of English test results with Nyanja test results

Product moment correlations of scores in English and Nyanja were carried out. In Years 3 and 4 they reveal low positive correlations of low statistical significance for the most part. Since the scores in these years tend to be low in any case, they do not merit any special attention. Of more interest is the correlation of scores in Year 6.

**Table 5: Correlations of Scores in English and Nyanja, Year 6**

School C	(rural)	0.82467	( $p < 0.0001$ )
School D	(rural)	0.73068	( $p < 0.0001$ )
School K	(rural)	0.77876	( $p < 0.0001$ )
School J	(urban)	0.56686	( $p < 0.0011$ )
School T	(urban)	0.67354	( $p < 0.0001$ )

Correlations of English scores and Nyanja scores in Year 6 yielded results of 0.7 or over with high statistical significance (at 0.0001) in all rural Zambian Year 6 classes. This means that there is a strong tendency in those schools for pupils who score relatively well in English to score relatively well in Nyanja and vice versa. This suggests that there may be an underlying "literacy" factor, in that not only does the English performance improve relatively in the sixth year, but the same pupils who improve in English also tend to be those who improve in Nyanja.

## 7.7. Significance of sex, rural/urban, school year and home language

**7.7.1.** The influence of these factors on Word Find results has been calculated through statistical procedures, using the MIXED procedure from the computer package SAS. A detailed account appears in Appendix K.

### 7.7.2. Sex differences

Overall there is little evidence of differing achievement by the two sexes. Girls are estimated to score 1.2 marks more than boys overall on the English test, but this is not statistically significant. Girls again have an advantage of 0.2 marks in the Nyanja test, but again this is non-significant.

### 7.7.3. Urban/rural differences

The estimated differences in score between urban and rural schools for English is large at 7.2 marks, but this is not significant. The problem is the relatively small number of schools involved. It is possible that real differences between urban and rural schools do exist for English, but a larger sample of schools (not pupils) would be needed to confirm this.

Interestingly, on the Nyanja test rural schools are estimated to score 1.75 more than urban schools, but for the same reason this is not statistically significant. Again, there may be a real difference here, for one might expect children from rural Nyanja speaking areas to be more familiar with the language than urban children, many of whom come from a non-Nyanja speaking home background (in urban school T approximately half of the pupils do not have Nyanja as a home language, while this is the case of approximately two thirds of children in urban school J).

#### **7.7.4. Year differences**

Estimated differences between years 3, 4 and 6 are large and strongly significant, indicating a progressive improvement in ability with length of schooling for performance in both English and Nyanja. This is reassuring in that it indicates children are actually learning more the longer they stay in school.

#### **7.7.5. Home Language differences (Nyanja test only)**

On the Nyanja test children from Nyanja speaking homes are estimated to achieve 0.42 marks more than children from non-Nyanja speaking homes. However, although it is in the expected direction, this difference is far from statistically significant.

## **7.8. Relationship between factors in educational provision and scores**

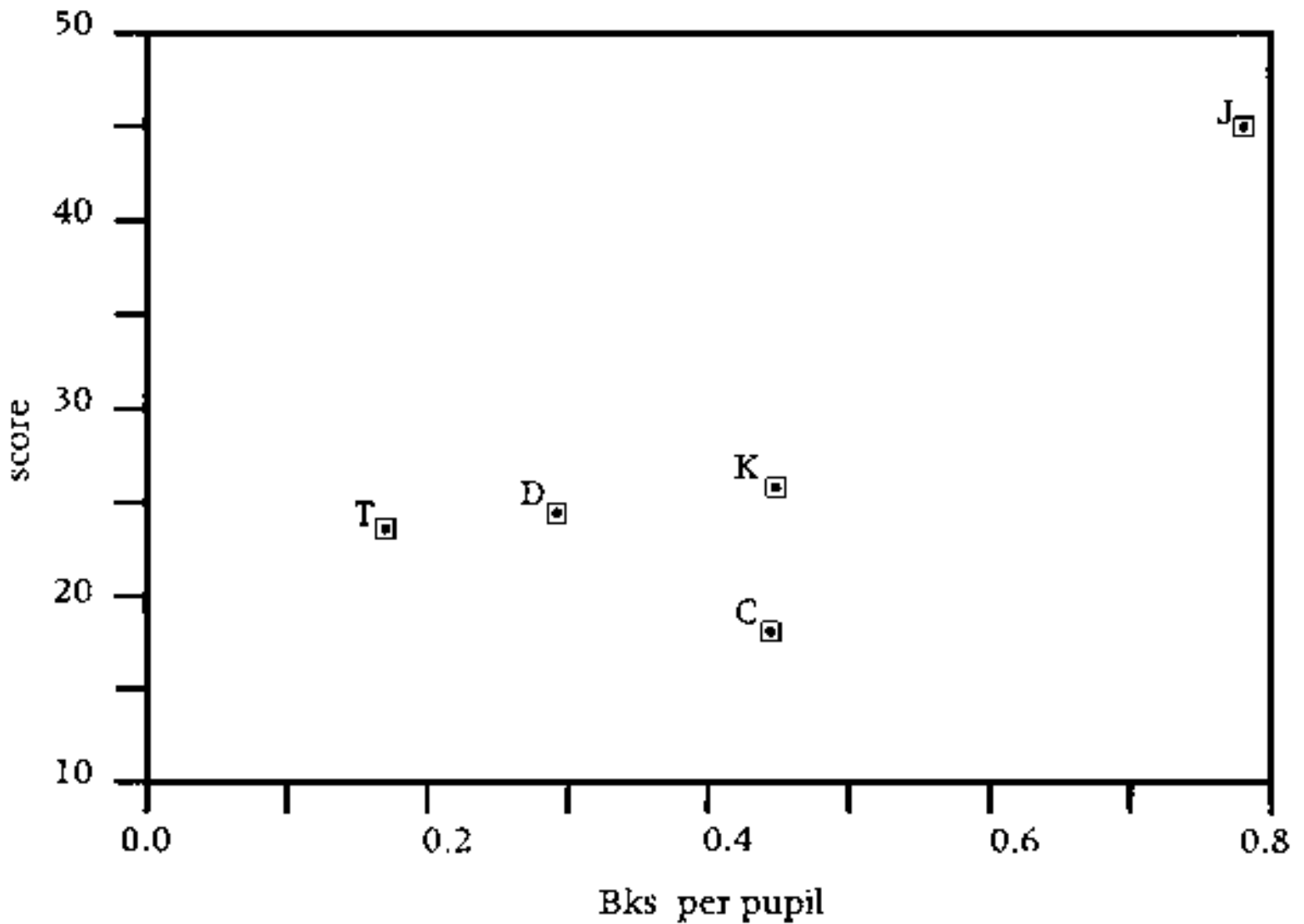
**7.8.1.** The factors that are considered here are books per pupil, class size and teacher qualifications in relation to mean scores on the Word Find reading test at Grade 6. The results are presented statistically through computed means, and also visually through scattergrams. The results are suggestive, but not conclusive, partly because the number of schools is small, partly because the difference between the mean scores at Grade 6 is very small in the case of 3 schools, and partly because the differences within the other factors is probably not sufficient to give rise to clear effects. It is also likely that the factors interact with each other, in a way that will not be readily apparent in a simple one factor comparison. Needless to say, no claim for statistical significance is made.

#### **7.8.2. Relationship between Books per pupil (Grades 1-6) and Mean Scores in Grade 6**

Here the mean number of English books per pupil over all pupils from Grade 1 to Grade 6 is computed.



School	Gd 6 Mean Word Find Score	Books per Pupil
J	45.37	0.79
K	25.79	0.42
D	25.19	0.28
T	24.23	0.16
C	18.88	0.44

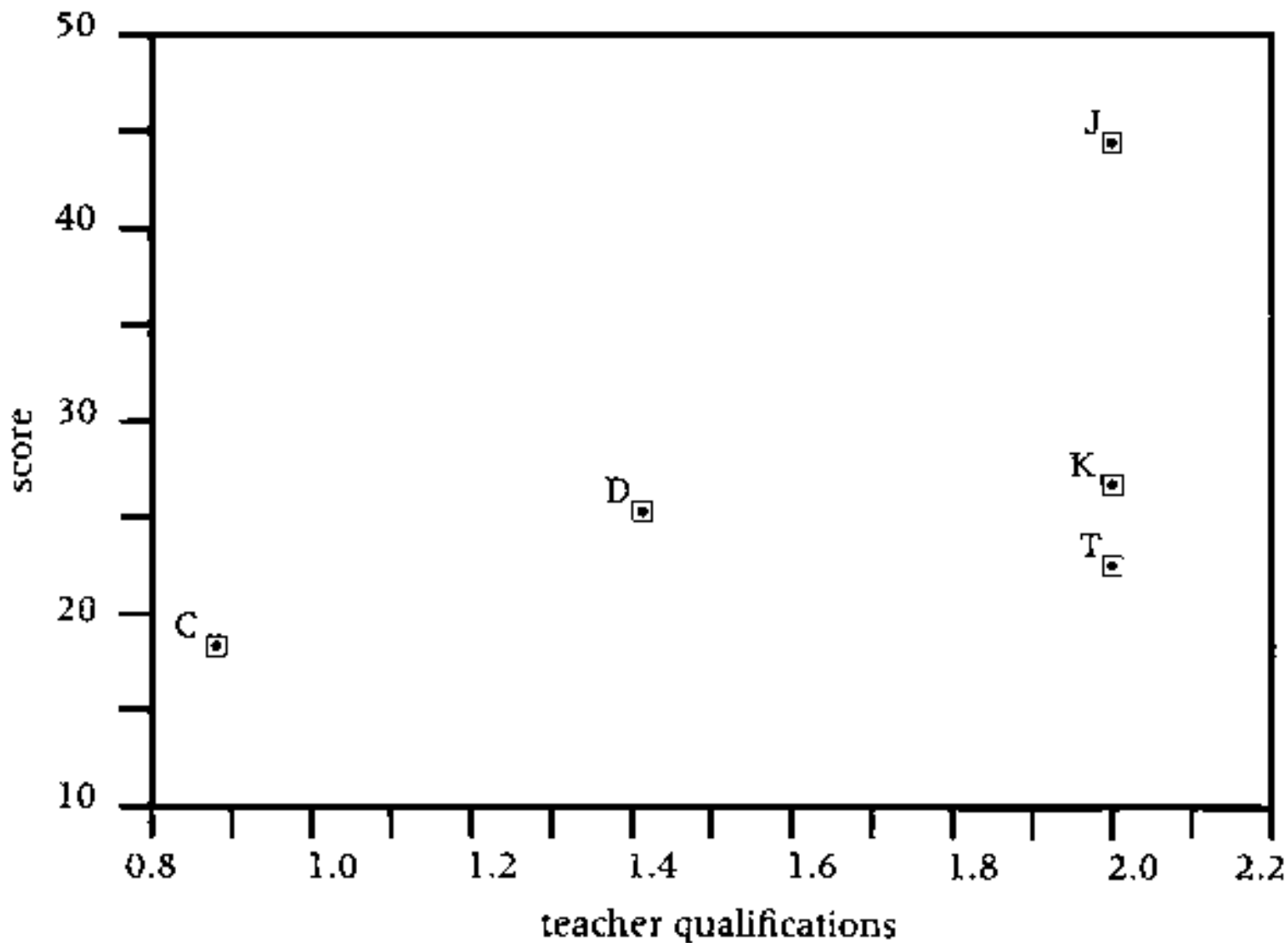


With the exception of school C there is a tendency for score to increase with an increase in books, which is what one would expect. Note that in School J pupils have almost one book each.

### 7.8.3. Relationship between Mean Class Sizes (Grades 1-6) and Mean Score at Grade 6

The class mean size is computed for all classes from Grades 1 to 6, although of course it is not known how big past classes of pupils currently in grade 6 were.

School	Gd 6 Mean Word Find Score	Mean Class Size Gds 1-6
J	45.37	50.83
K	25.79	35.66
D	25.19	43.66
T	24.23	51.83
C	18.88	36.33



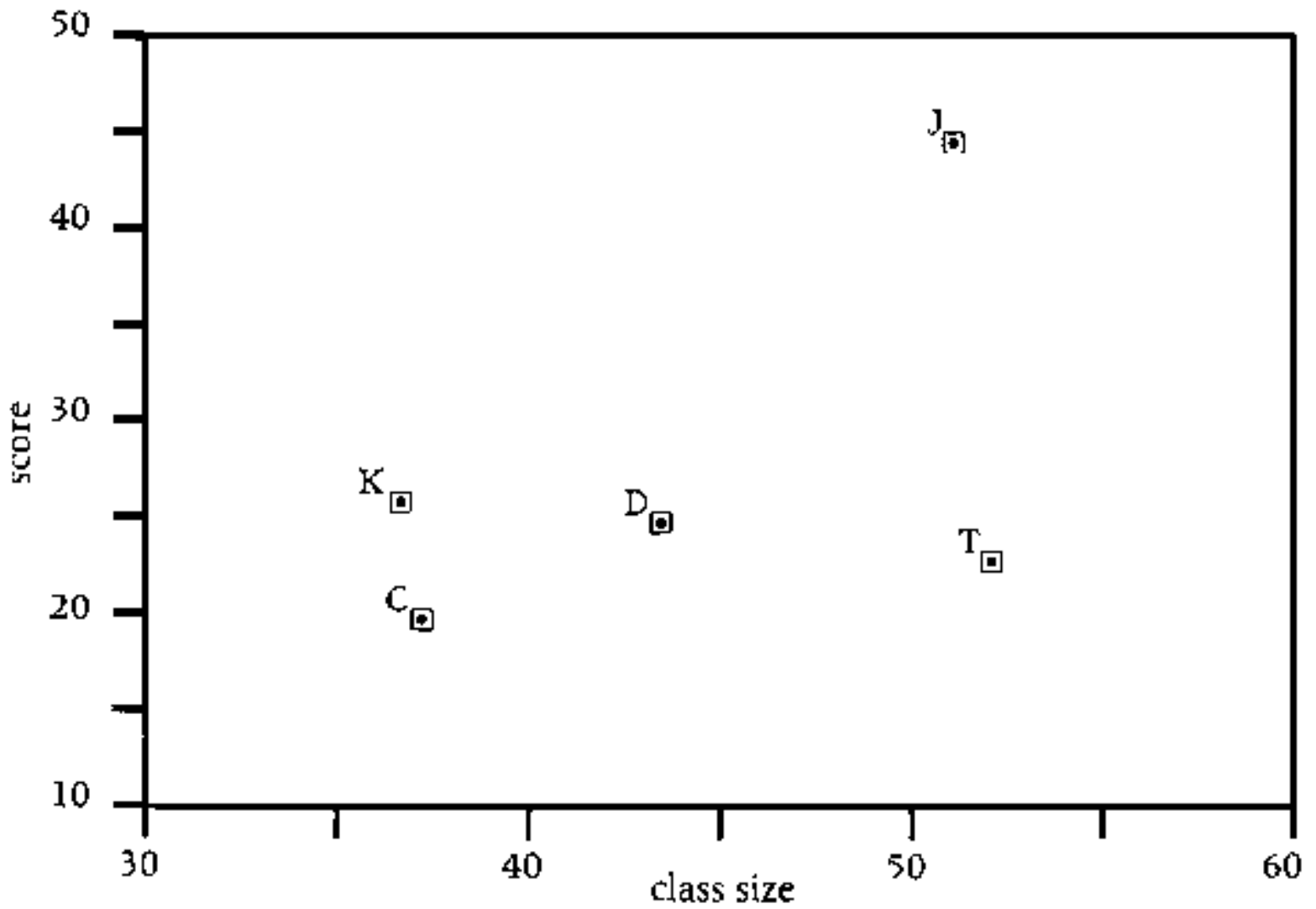
This presents an inconclusive picture with School J which has large classes achieving high test scores,

while School C with small classes has a low mean test score. It certainly suggests that a class size per se (at least if limited to 50) does not have a determining effect on achievement.

#### 7.8.4. Relationship between Teacher Qualifications and Mean Score at Grade 6

The mean teacher qualification score is arrived at by giving two marks for each qualified teacher, and 0 marks for an unqualified teacher for all teachers at and below Grade 6, and dividing the result by the number of teachers.

School	Gd 6 Mean Word Find Score	Tchr Mean Qual'tion Score
J	45.37	2.00
K	25.79	2.00
D	25.19	1.40
T	24.23	2.00
C	18.88	0.88



While not conclusive, the results are suggestive. There is a tendency for schools with better qualified teachers to achieve higher means at Grade 6. Of course, it is not known how long the current situation has been the case in these schools (ie whether in previous years there were more or fewer qualified teachers).

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## 8. The read aloud tests

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### 8.1. Procedure

For the data structure of this test see 4.6.2. It will be recalled that 2 girls and 2 boys (1 average, 1 above average) were requested from each class that had done Word Find test, but that time constraints meant this was not possible in all cases. Below average pupils were not requested for this particular test, since it would have been destructive to subject them to what would have been a demoralising experience. The selection mode means that the Read Aloud test does not adequately feature "below average" performance, and this is to be borne in mind in considering the results. (Even so, there were some very weak performances.)

The Read Aloud test consists of five graded passages based upon language from the *Zambia Primary Course* as follows:

Passage 1, 2 and 3: for year 3

Passage 4: for year 4

Passage 5: for year 6

Each passage is followed by questions which are asked immediately after that passage has been read (see Appendix D). Pupils could look at the passages while they answered the questions, and could also look at the questions if they wished.

## 8.2. Administration

Pupils were tested by the researcher individually (however on occasion an inspector and/or teacher was present). The sessions generally took place in an empty classroom, store room, or office. I opened the session with a few simple questions about the pupil's name and age, and continued with some questions about the picture accompanying the first reading text.

If at any point it appeared from their reading that pupils were experiencing severe problems, then the session would terminate at that point. In the case of clearly competent children, some passages and questions were omitted. Some questions were also omitted if the reader's previous answer made it redundant. All readings were audio-recorded.

The first two passages and questions were intended to be very easy so as to give the pupils confidence, but proved to be difficult for some Grade 3 pupils (eg School D; see 8.7 below).

## 8.3. Describing reading performance

**8.3.1.** The reader's performance on this test is judged on the basis of accuracy of reading, plus comprehension as judged by the response to the questions. As far as accuracy of reading is concerned, the reader's accent is disregarded, since the immediate aim is to see whether the pupils can convert the written words into spoken form accurately enough to be understood. Clearly in the case of second language readers it is dangerous to infer comprehension from reading aloud. Indeed one of the problems in judging the reading is that there are some readers who appear to read reasonably accurately, but with little evidence of understanding as judged by answers to questions, while others may make mistakes in accuracy, but have clearly understood.

**8.3.2.** Thus a child who reads "Muno is playing with a ball" as "Muno is playing a ball" and answers the question "What is Muno doing?" in the same way has almost certainly understood. What such a testee is doing, however, is "transforming" the text and the answer in terms of the stage of language development that he or she has reached. Although such utterances do not represent standard English, our concern in these tests is not to assess the testees' speaking ability in terms of standard English, but rather their reading comprehension of written text.

**8.3.4.** Such deviancies from the text (and from standard English) indicate that the child has almost certainly understood the text, but is demonstrating comprehension through a system which is still at a developmental stage. These deviancies may be compared to

English children who read "John isn't going" as "John ain't going" where the non-standard pronunciation is in itself evidence that the child has understood, but "translated" as it were, the written sentence into their own variety of English. This type of transformation in reading (which can only result from comprehension), may be contrasted with the case of pupils who read accurately word by word, but do not comprehend what they read because their language proficiency is inadequate. The latter rely entirely on the text for what they say; the former "transform" the text in terms of their own language system.

**8.3.5.** Thus, certain meaning preserving slips and systematic errors may, paradoxically, constitute evidence that the reader has understood the text. Since the aim of this testing was to investigate reading comprehension and not accuracy of reproducing the text, errors which are judged to be developmental are not penalised.

**8.3.6.** On the other hand a child who reads passage 2 accurately, but answers the question "What does Mary like to eat?" by "They are red" may well not have understood the text. (Of course it is possible that they have not understood the question.) Again, a child who answers the question "Why did Robert go to the hospital?" by reading out "When Robert was a little boy he was very sick, so he went with his mother to the hospital" may or may not have understood the text. Certainly the answer is not appropriate to the discourse. Such answers make clear decisions about the pupil's comprehension rather difficult.

**8.3.7.** For the above reasons precise objective quantification of comprehension on the basis of reading aloud is problematic. Standard miscue analysis (eg Goodman, 1973) or modified versions (Vincent & de la Mare, 1990) have been developed for English native speaker readers. They are inappropriate for most Zambian children in that they do not allow for language learners in a developmental stage.

## **8.4. Rationale for the questions**

The questions which follow each passage practice various operations which are considered relevant at this level, and which are fundamental to reading with comprehension. They are:

(i) obtaining information through understanding direct reference made in the text. Thus the first question in passage 3 (*Who is Miss Moyo?*) requires the student to make direct reference to the relevant sentence in the text (*Miss Moyo is a teacher.*) and produce the answer. Clearly such direct reference questions may result in testees providing the correct answer through "matching" without necessarily understanding what they are saying.

(ii) obtaining information through recovery of an element in the text which is referred to indirectly, typically by means a pronoun, although other parts of speech may be used. An example is question 2 of passage 3 (*Where did Miss Moyo put the flowers?*) which requires the reader to realise that "them" in "... she put them on her table" refers to "flowers".

(iii) obtaining information through making the appropriate inference. Here the reader infers a relationship between two parts of a text that is not explicitly stated. Question 3 of passage 3 (*Why was Miss Moyo happy?*) requires the reader to infer from the text the most likely reason why Miss Moyo was happy (...they gave her some flowers. She was very happy and...). It may be that in some cases appropriate knowledge of the world facilitates the appropriate inference.

The three operations (direct reference, indirect reference and inference) were distributed in the 18 questions as follows:

Passage 1:	1, direct reference	2, indirect reference.
Passage 2:	1, direct reference	2 indirect reference
	3, indirect reference.	
Passage 3:	1, direct reference	2, indirect reference.
	3, inference	
Passage 4:	1, direct reference	2, indirect reference.
	3, direct reference	4, indirect reference.
Passage 5:	1, direct reference	2, indirect reference.
	3, inference	4, inference
	5, indirect reference.	6, direct reference.

Pupils who are unable to obtain the relevant information in answer to a question that involves one of the above operations are unlikely to be comprehending the relevant section of the text. There is, nonetheless, a possibility that pupils could indeed understand the text, but were not able to demonstrate comprehension either because:

(i) they could not understand the question. (Here it should be noted that the question was spoken by me, and pupils were also shown the written form of the question.) or because:



(ii) they were not able to produce an answer in English (although they understood both text and question).

However, all the questions can be answered acceptably by using the language in the texts. It is therefore likely that pupils who cannot answer these questions are failing not because of insufficient productive proficiency in English, but rather because they have not understood the text or the question. Nevertheless, the possibility always remains that asking and answering questions in the child's mother tongue might have yielded different results.

## 8.5. Example of read aloud transcript

To illustrate the issues discussed above, an example of a read aloud transcript is provided below. The transcription is restricted to the reading and to the questions and answers; the introductory, linking and concluding remarks are omitted. The transcript is of a Grade 6 girl from School D. She obtained 39 on the Word Find test, well above the mean of 28 for all Grade 6 pupils.

### Notes on Transcription Conventions

Miscues which consist of misreadings in the pupils' readings have been underlined. Miscues which consist of repetitions in the pupils' readings are transcribed but not underlined.

R = Researcher

Numbers in brackets { } indicate the mark awarded (2, 1, or 0: see 8.6)

Numbers in round brackets () preceded by Q indicate the question number for the passage

**School: D Grade: 6 Pupil: 3G**

### Passage 1

P: (reads) Munno is playing with a ball. He is playing under the tree. (2)

R: Very good. (Q 1): What is Munno doing?

16B: He is playing - he is playing a ball. {2} R: Good. (Q 2) Where is Munno playing?

P: He is playing under the tree. (2)

### Passage 2

P: (reads) Mary is holding some tomatoes. They are red. She likes to eat them. (2)

R: Good. (Q 1) What is Mary holding?

P: Mary is hold some tomatoes. {2}

R: Good. (Q 2) What does Mary like to eat?

P: Mary likes to eat them.

R: Mm. To eat what?

P: Tomatoes. (2)

R: That's it. Good. (Q 3) What colour are the tomatoes?

P: Red. {2}

R: Yes. Very good.

*Comments: No problems. She has understood the texts, although responses to Q 1 in both texts indicate developmental error. Again, although her first answer to Passage 2, Q 2 is text bound, she amplifies easily.*

### Passage 3

P: (reads) Miss Moyo is a teacher. Sara and Miriam are - are in Mrs Moyo class. One day they - one day they gave her some flowers. She was very happy and she putting them on her table. "Thank you - thank you - thank you girls," she said. {2}

R: OK, very good. (Q 1) Who is Miss Moyo?

P: Mrs Moyo is a teacher. {2}

R: (Q 2) Where did Miss Moyo put the flowers?

P: Miss Moyo put the flowers on the table. {2}

R: Very good. (Q 3) Why was Miss Moyo happy? Why was Miss Moyo happy? (MOE Inspector translates into Nyanja. Tells her to answer in Nyanja)

P: One day they gave - (MOE Inspector interrupts. P answers in Nyanja after some help {0})

*Comments: "Putting" for "put" is regarded as a developmental slip. She has clearly understood, and indicates by the mistake that she has recognised it as a verb. She has problems with Q 3, and is only able to answer after considerable coaxing.*

### Passage 4

P: (reads) When Robert was a little boy he was very sick, so he went with - with his mother to the hospital. A nurse took Robert and his mother to a big room and she put him into a bed. Later the doctor come came and looked at Robert. "You will soon be

better" he said. {2}

R: Good. (Q 1) Where did Robert go?

P: Robert go to the hospital. {2}

R: Good. (Q 2) Why did Robert go to the hospital?

P: She - he is sick. {2}

R: Good. OK. (Q 3) Where did the nurse put Robert?

P: He put him into the bed. (2)

R: Good. (Q 4) What did the doctor say?

P: You will - you will soon be better. {2}

*Comments: She seems to have no problem here, although there are developmental errors with "come" for "came" and "go" for "went".*

## Passage 5

P: (reads) Simon and his sister Ruth went by bus to visit their uncle. As the bus was going over a bridge - a bridge they heard a loud noise. The driver stopped the bus and got out. A large sack of - a large sack of - of tomato had fallen from the roof. It had burst open and there were tomato everywhere on the road. Simon and Ruth helped to pick them up and put - and put them back in the sack. The sack was so heavy that two men had to help the driver to lift it into the roof of the bus. {2}

R: OK. Very good. Thank you. (Q 1) Did Simon and Ruth go in a car?... Did they go in a car?... Or in a bus?

P: In a bus. {2}

R: In a bus. OK (Q 3) Why did the driver stop the bus?

P: (no response. MOE inspector translates into Nyanja)

P: (replies in Nyanja: Because there was a bridge {0})

R: OK. (Q 5) How did Simon and Ruth help? How did Simon and Ruth help? (MOE inspector translates into Nyanja)

P: (Replies in Nyanja: She helped them to carry the sack.{0})

*Comments: She seemed to be struggling with this passage. "Potatoes" was twice misread as "tomato", but this is a fairly trivial slip. She was given help with the answer*

to Q 1, and was again unable to answer the inference question with "Why" (Q 3). As she had considerable difficulty with Q 5 the session terminated at that point. Although she had read this text reasonably her stress and intonation suggested that in places she did not fully comprehend, and this was borne out by her response to the questions. Here we have an example of a reasonable reading (awarded a mark of 2) but incomplete comprehension of the text as a whole, which illustrates the risk of relying on reading alone as an indicator of comprehension.

## 8.6. Findings of the read aloud testing

Although only the better pupils were tested, the general pattern which emerges (see 8.7 below) supports the findings of the group reading test Word Find. The Grade 3 rural pupils have great difficulty with Passage 1, which is meant to be well below their level. Indeed it seems that that for practical purposes 3 readers in School D, Grade 3 (see 8.7 below) cannot read in English. Rural Grade 4 likewise have difficulty with Passage 1, and with Passage 2 (meant to be well within their level). Only urban school J Grade 3 pupils coped well with the first 3 passages.

Around half the Grade 6 rural children have difficulties with the *questions* of Passage 5 (intended for their level). However, the majority cope with the *reading aloud* of that passage, which again indicates the problem of relying on reading aloud as a guide to comprehension in second language reading. As with the Word Find test, the majority of Grade 6 pupils seem to experience relatively little difficulty with the passages intended for Grade 3 and 4, although 7 out of 10 rural Grade 6 pupils have not produced good answers to the Passage 3 inference question.

The mark sheets for all read aloud tests are provided in Appendix L. The assessment scores for rural school D are provided below. It should be remembered that the marking of this test is more impressionistic than Word Find.

## 8.7. Reading aloud: Assessment sheet for School D

### Key to abbreviations:

B: boy; G: girl

Pass 1: Passage 1; Ques 1: Question 1

T: test terminated at this point

na: question not asked

## Assessment of Overall Reading of Passages: key to numbers:

2= clearly comprehensible

1= incomprehensible in places

0= mostly incomprehensible; no evidence of understanding

## Assessment of Answers to Comprehension

### Questions: key to numbers:

2= clear evidence of comprehension

1= partial evidence of comprehension

0= no evidence of comprehension

	Grade 3				Grade 4				Grade 6			
	4B	3B	G	G	5B	1B	8G	5G	8B	3B	3G	12G
<b>Pass 1</b>	1	1	1	2	2	2	2	2	2	2	2	2
<b>Ques 1</b>	1	1	1	2	2	2	2	2	2	2	2	2
<b>Ques 2</b>	0	0	0	2	2	2	0	0	2	2	2	2
	T	T	T									
<b>Pass 2</b>				1	2	2	2	2	2	2	2	2
<b>Ques 1</b>				2	2	2	2	1	2	2	2	2
<b>Ques 2</b>				2	1	2	2	1	1	2	2	2
<b>Ques 3</b>				2	2	2	2	2	2	2	2	2
								T				
<b>Pass 3</b>				1	2	2	1		2	2	2	2
<b>Ques 1</b>				2	2	2	0		2	2	2	2
<b>Ques 2</b>				2	0	2	2		2	2	2	2
<b>Ques 3</b>				1	0	0	0		1	1	0	0
				T	T	T	T					
<b>Pass 4</b>									2	2	2	2
<b>Ques 1</b>									2	2	2	2
<b>Ques 2</b>									2	2	2	2
<b>Ques 3</b>									2	2	2	2
<b>Ques 4</b>									0	1	2	2

<b>Pass 5</b>									2	2	2	2
<b>Ques 1</b>									na	na	2	2
<b>Ques 2</b>									na	na	na	na
<b>Ques 3</b>									2	2	0	2
<b>Ques 4</b>									na	na	na	2
<b>Ques 5</b>									2	0	0	2
<b>Ques 6</b>									2	0	T	2

A clear pattern emerges, as one would expect, of higher marks in the top right hand section (results of Grade 6 pupils reading easy passages) with low or no marks, in the bottom left hand section (results of Grade 3 children reading difficult passages).

In terms of question types the direct reference questions are handled fairly easily. However, the indirect reference questions were frequently answered by the Grade 3 and Grade 4 pupils by repeating the pronoun. Thus the question "What does Mary like to eat?" (passage 2) was answered by "She likes to eat them". It is not clear whether this answer stems from lack of comprehension of the text, or is simply an inadequate piece of communication by readers who are excessively text-bound.

The questions which prove difficult are the inference questions (passage 3, q. 3 and passage 5 q. 3 and q. 4). Grade 6 pupils who did well on all questions in passage 4 had problems with passage 3 question 3. The probable reason is that the pupils are not accustomed to being asked inferential questions, typically beginning "Why?". In this connection we may note that Chikalanga (in press) concludes from tests on 158 grade 8 (ie secondary) pupils in Zambia that their performance on inference questions was "amazingly low". He attributes this possibly to decoding problems, but also to the fact that although the ZPC course cites inferencing as a skill to be taught, the teachers' handbooks pay little attention to it, "and consequently little is done about it", since training colleges and teachers themselves are largely directed by the handbooks.

## 8.9. Conclusions on read aloud testing

The general conclusions drawn from the read aloud testing are:

- (i) That the findings confirm the performance of pupils in the Word Find written test, namely that most Grade 3 and 4 pupils have difficulties with passages which are aimed at their level. Grade 6 pupils can read standard 3 and 4 texts with comprehension but many seem to be struggling with passage 5 which is intended to be at their level.

(ii) That pupils' ability to read aloud sometimes outstrips their demonstrable comprehension and that reading aloud alone is not a reliable indicator of comprehension.

(iii) That developmental errors in reading aloud can be treated as evidence of comprehension rather than lack of comprehension.

(iv) That pupils need more practice in answering inferential questions.

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## 9. Reading comprehension tests in Zambian primary schools

### [9.1. The grade 7 examination](#)

### [9.2. Assessing reading achievement nationally at grade 4](#)

There would appear to be two main concerns with respect to the testing of reading in Zambian primary schools on a national scale. One is the nature of the Grade 7 primary examination; the other is the development of reading achievement tests at Grade 4 as part of a national assessment system.

### 9.1. The grade 7 examination

**9.1.1.** It is widely recognised that nationally set school examinations have a powerful washback effect upon teaching. As far as Zambian primary schools are concerned the Grade 7 examinations are especially important as they control access to Junior Secondary School. While an exhaustive analysis of the examination would be out of place here, it is worth briefly considering the reading component of the examination in order to assess its possible influence on teaching, and how it might be modified to enhance the quality of the teaching of reading comprehension. The following comments are based on a consideration of two papers, namely the 1988 English paper (S/YE1/G7/88), and the 1990 English paper (S/PE1/G7/90).

**9.1.2.** The examination consists of 3 parts. Part 1 examines grammar, and Part 2 punctuation and inter-sentential cohesion (in effect, an indirect attempt to assess writing skills). Part 3 tests reading comprehension through three passages. The shortest passage is around 250 words, the longest around 500, with the other four close to 350 words. Each passage is followed by 6 comprehension questions. These questions, like all others in this examination are multiple choice (4 options in each question).

**9.1.3.** The reading comprehension component of the examination will be dealt with here in terms of the following: first the language level, second the text types, third the multiple choice format, and fourth the reading skills.



(i) Language level: this seems to be relatively high bearing in mind the weak overall performance of Grade 6 pupils in the Word Find test. It is difficult to see how most Grade 6 pupils can in the space of one year come up to a standard where they would be able to perform reasonably on the Grade 7 English examination. The problem here is that pupils of average ability have little chance to show what they can do, but only what they cannot do. This presumably derives from the examination's primary function as a selection device for Grade 8. Confining the examination to this function means that it only needs to discriminate at the top end of ability.

(ii) The text types: the text types in the two examination papers looked at were continuous prose texts consisting of narrative and simple exposition. While these are perfectly acceptable as far as they go, there is room for the inclusion of a greater variety of texts which could be more relevant to the "real-life" situation of the majority of pupils (eg forms, instructions, advertisements etc). There is also room for considering text types used in the other subject areas of the primary curriculum (which are arguably also "real life" texts for primary school children). A further advantage of extending the range of text types in this way is that they would be susceptible to more realistic test tasks.

(iii) The multiple choice format: the examination relies exclusively on the multiple choice format. The problems arising from this are:

(a) the distractors presented can do their job too well and confuse some pupils who might otherwise have understood the point at issue.

(b) the need for distractors increases the length of the paper and the net result is a relatively low number of questions

(c) it is possible that some fortunate pupils can do well through guessing

(d) copying is relatively easy with multiple choice

(e) the backwash effect of this format seems to be that the testing of reading comprehension in lower grades is confined to the multiple choice format

(f) the format is artificial and can only awkwardly be

adapted to reading operations such as those mentioned in paragraph (iv) below.

The overwhelming advantage of multiple choice for large examinations is that it lends itself to machine marking. However, against this should be weighed the above limitations and its lack of sensitivity as a testing format. It directs pupils towards limited choices, which they might not have thought of in a free reading situation. Consideration should therefore be given in the reading comprehension component to including short written answers ie one word, one phrase or single sentences, which would make for assessment more in line with current educational objectives.

(iv) Reading skills: while opinion is divided as to the exact nature of reading skills, such higher order skills as identifying main points, identifying supporting detail, making appropriate inferences, or interpreting material are not easily addressed with the multiple choice format. A move towards incorporating a range of reading skills would also be in keeping with the new aims for Grade 7 outlined in the syllabus for the new ZBEC (see 6.2.2), and could also encourage abilities needed to learn through reading in other areas of the primary curriculum. (These higher order skills, of course, presuppose a competence in basic literacy, which should not be the concern of the Grade 7 examination).

**9.1.4.** In view of the above it would seem worthwhile to investigate the possibility of modifying the current Grade 7 English comprehension section, with attention given to:

(a) extending the range of ability assessed, in particular towards the middle ability bands. In principle it would be possible to do this without sacrificing the discriminatory power of the examination at the top end.

(b) extending the range of text types (or *genres* to use a current term) so as to encompass more "real life" texts, including text types relevant to other primary subject areas.

(c) extending the range of reading skills tested. This might necessitate the use of formats other than multiple choice. There would be implications here for the marking process, but the costs of such an operation would have to be weighed against the beneficial effect such an innovation could have on the teaching process.

**9.1.5.** I would accordingly recommend that specialist research be carried out into:

(a) specifying the reading comprehension abilities relevant to real-life

situations, relevant to reading to learn in other subjects in school, and relevant to the needs of the majority of pupils who will end their schooling at Grade 7. This would involve, among other things, a consideration of appropriate topics, and text types for such pupils. It should also consider relevant reading skills and degrees of fluency in reading. Such work should be carried out in conjunction with the Curriculum Development Centre, and be integrated with the aims of the new ZBEC syllabus (see the extract from the new draft syllabus in Appendix M).

(b) investigating examination formats which lend themselves to assessment of the selected reading abilities. It is likely that a compromise between practicality and validity would be needed here. Practicality involves issues such as the length of the examination paper, and the resources available for production and marking. Validity refers to the degree to which the test reflects an theoretically acceptable approach to reading.

Clearly to leave the current reading comprehension component of the Grade 7 examination unmodified could undermine a more comprehensive approach to reading as well as the aims of the new syllabus.

## **9.2. Assessing reading achievement nationally at grade 4**

Following the Jomtien Conference Zambia formulated its own goals and strategies for the 1990's. A part of this involves the assessing of learner achievement through competency tests for diagnostic use at Grade 4 (see Kelly, 1993). In advance of the main project, Zambian educationalists intend to prepare and administer their own interim tests in, among other areas, reading. The tests are to be administered annually to a sample of 1.5% of Grade 4 enrolment, with a view to obtaining information for a proposed National Assessment System. This proposal is to be welcomed, and one to which the present project might serve in a contributory capacity. As the proposal is already going ahead, it would be presumptuous to make recommendations other than a general recommendation that the project be supported.

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## 10. Conclusion and suggestions for improvements

### [References and select bibliography](#)

**10.1.** The results of the Word Find reading test and the Read Aloud individual reading tests administered to grade 3, 4 and 6 pupils suggest that the reading ability in English of most pupils is lower than that needed to cope with their English coursebooks, and lower than their teachers estimate it.

**10.2.** The results of the Word Find reading test indicate that in the 5 schools tested there was inadequate comprehension of texts judged to be at their level on the part of:

- approximately 85% of Grade 3 pupils
- approximately 88% of Grade 4 pupils
- approximately 74% of Grade 6 pupils

The reading ability of Grade 3 and Grade 4 pupils gives particular cause for concern. Although Grade 6 pupils have for the most part adequate comprehension of texts from Grade 3 and 4 levels, it is difficult to see how such limited ability can enable them to read to learn in other subject areas.

**10.3.** The findings of the individual Read Aloud tests, although more impressionistic, confirm the results of Word Find, in that they suggest the majority of pupils in Grades 3 and 4 have considerable difficulty with material deemed appropriate to their level. Grade 6 pupils also have problems, although they seem again to cope with material below their level. In addition, many pupils at all levels appear to have difficulty in making appropriate inferences in reading. This may be a function of the preponderance of "plain sense" reference questions that occur in their books and in their classes.

**10.4.** As far as methodology of teaching reading is concerned, the majority of teachers seem to give too much prominence to "look and say" methods which stress accuracy of reading aloud, rather than promoting reading as a process of acquiring meaning from text. Much teacher training seems to be devoted to going through the steps in the

Teachers' Handbooks and does not foster a flexible response on the part of the teachers to difficulties that their learners might encounter in reading.

**10.5.** To compound the problems engendered by the predominant classroom methodology, there are other factors that aggravate the situation. The provision of course books is inadequate, so that even those children who learn to read from the blackboard are unable to undergo the practice necessary to make them fluent readers. In the five schools tested there was some suggestion that schools with better book provision achieved higher test scores. However, book provision may be ameliorated by the new books for the incoming *Zambia Basic Education Course* where the intention is that there should be one book between two pupils. As far as class size is concerned, classes are indeed large, but they are not overwhelmingly so. According to *Focus on Learning* (MOE, 1992) the average for all primary schools is 39.9. Nonetheless, there is local variation, and in the schools visited the problem seemed most acute in urban areas. However, test scores suggest that class size per se is not a determining factor in achievement. The quality of teaching is clearly crucial, and the poor test results may be aggravated by a shortage of trained teachers in schools. However, a larger sample of schools, with larger differences between factors being investigated, would be needed to come to firmer conclusions.

**10.6.** Although disquieting, the situation in Zambian primary schools is not entirely gloomy. Pupils certainly make progress over time, and there is a small number of pupils who do seem to read adequately at their level, despite the circumstances. If more of their colleagues are to achieve satisfactory standards however, attention should be given to the following:

First, more teachers should see reading as a process of meaning making, and not as a process of "barking at print". The approach in most classes that I observed appears to be a barrier to the pupils' progress. A more meaning-oriented approach would also require teachers to attend to the presentation of meaning of new language and to develop techniques for the checking of meaning.

There are implications here for teacher trainers. They too need to appreciate the importance of seeing reading as essentially concerned with meaning. It may well be that the first priority in courses should be to provide the trainers themselves with courses that expose them a variety of meaning-oriented approaches to reading.

This change of approach may be helped by the new teaching material which embodies a methodology encouraging teachers and pupils to think of reading as a process of obtaining information and as an opportunity to be communicated with, rather than a process of parroting the book or the teacher.

**Recommendation 1:** That inservice methodology sessions should be provided for primary school teachers on a systematic basis and that it should be ensured that a "meaning making" approach to reading is integrated into the sessions.

**Recommendation 2:** In pre-service teacher training in the colleges it should be ensured that a "meaning making" approach to the teaching of reading is given prominence, and that trainees are equipped with appropriate techniques for presenting meaning and checking understanding, and for reacting to pupils who encounter difficulty with texts.

**10.7.** The present study presents a description of the current situation in 5 schools. It suggests that problems are acute in Grades 3 and 4. Such a situation warrants confirmation through testing on a larger scale, and also testing annually over a number of years in order to see whether such measures as are taken are having any effect. This is precisely what is currently under way (Kelly, 1993) with the development of reading competency tests for use at Grade 4 which will aim to test annually a 1.5% sample of the enrolment.

**Recommendation 3:** that support be given to the Zambian project to develop reading achievement tests at Grade 4.

**10.8.** The Grade 7 primary school leaving examination has an important influence on teaching, especially in the upper primary school. In order to have a more positive washback effect on teaching, the examination should as far as is practical reflect a more comprehensive view of reading comprehension.

**Recommendation 4:** that specialist research be carried out into:

(a) specifying the reading comprehension abilities relevant to real-life situations, relevant to reading to learn in other school subjects, and also relevant to the needs of the majority of pupils who will end their schooling at Grade 7.

(b) investigating examination formats which lend themselves to assessment of the selected abilities at Grade 7, bearing in mind the practicalities of the situation.

**10.9.** Pupils will not become fluent readers if they only read from the blackboard, or even if they only read texts from a coursebook if the reading is directed by the teacher in an excessively intensive manner (reading aloud, re-reading etc). It is widely agreed (and supported by research) that people become fluent readers through doing a lot of reading - there is no short cut. Providing primary school classes with large numbers of different titles of simple readers to be used in self-access library mode should be a

potentially beneficial step. The current book donation from the ODA to grades 3, 4 and 5 in Zambian primary schools should have a beneficial effect, provided the books are accessible linguistically, and provided they match the interests of the learners. The supplementary class readers funded by UNICEF and being introduced for Grades 2, 3 and 4 should also help. In addition lower primary classes will be re-issued with sets of the old Zambia Primary Course Readers for use as supplementary readers. It would clearly be an advantage if there was coordination of approach towards these different supplies of books.

**Recommendation 5:** That appropriate MOE officials should ensure that there is a coordinated policy with respect to the use of the various categories of supplementary readers (re-issues of old ZPC readers, ODA book donation, UNICEF class readers).

**10.10.** There is at present much discussion on upgrading primary education in Zambia given impetus by the report *Focus on Learning* (MOE, 1992) which deals with the complete range of problems in this area. While recognising that the teaching of reading does not take place in a vacuum, there is still a case to be made for giving it special treatment. It is possible that with the UNICEF funded books, the ODA book donation and the new ZBEC coursebooks, the availability of books may be improved. However, a more meaning-oriented methodology should be considered an even more vital concomitant so as to make best use of the provision. Proficiency in reading is crucial to the whole educational operation and essential to the progress of children in the primary schools of Zambia.

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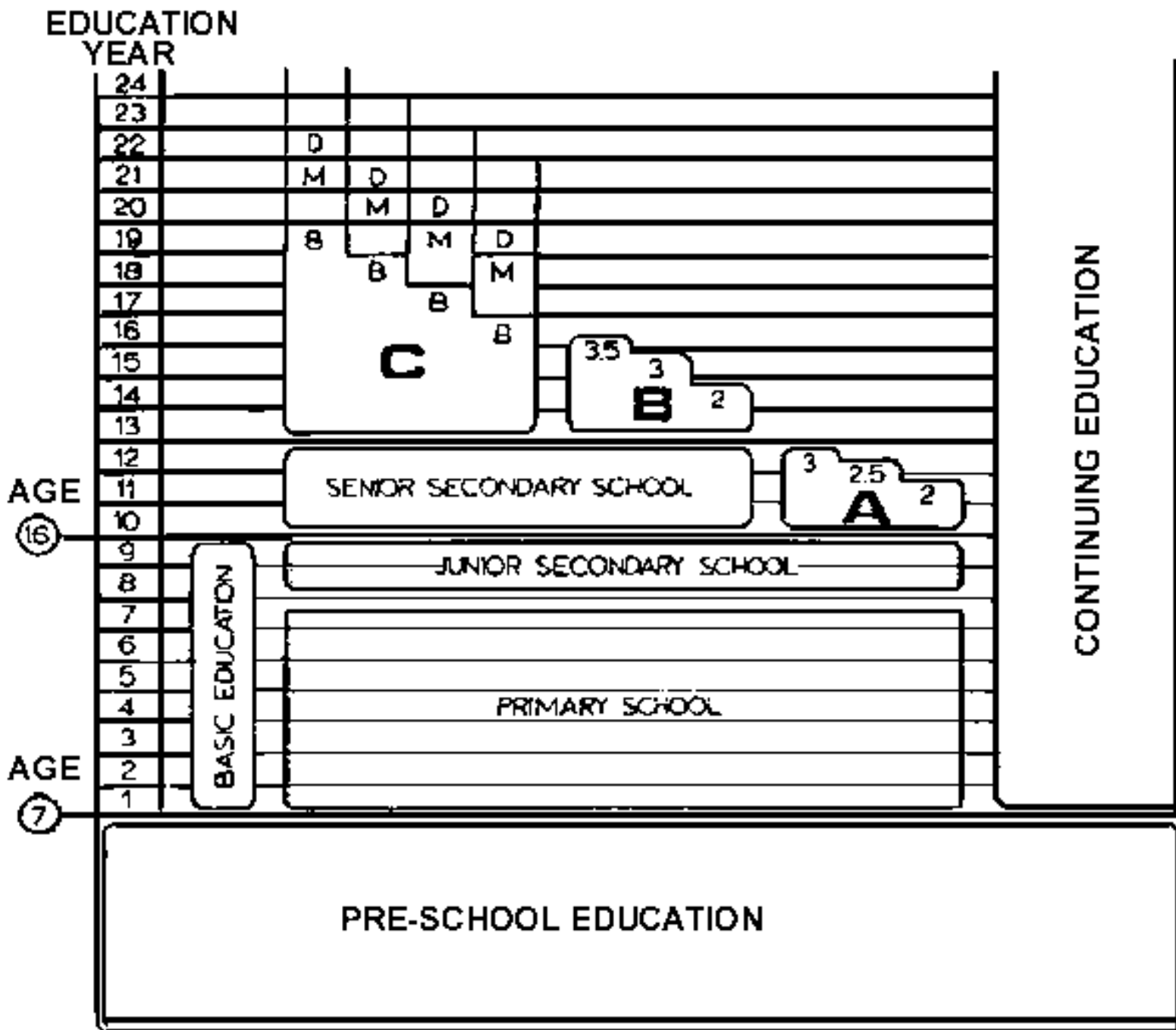
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# Appendix A - Structure of education system: Zambia



## NOTES

**A** Various vocational programmes, e.g., Trades, Nursing, Teacher Training, etc., leading to 3 certificate.

**B.** Various programmes, e.g., Agriculture, Technology, Commerce, Nursing, etc., leading usually to a diploma.

**C.** University degree:

D = Doctorate

M = Master

B = Bachelor:

4 years - Ordinary

5 years - Engineering Agriculture, etc.

6 years - Veterinary Science

7 years - Medicine, NB

NB

A and B there area also some courses which take less than 2 years.

From primary to senior secondary an education year represents grade.

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## Appendix B - Methods of teaching initial reading

The principal approach to initial reading in countries where English is the mother tongue of the majority of children generally involves one, or a combination of the phonic, whole word, whole sentence or "language experience" approaches. A brief characterisation of these terms follows:

### **Phonic**

This method proceeds from the conventionalised "sound values" of letters - the letter c being given the value "kuh", for example, and the word "cot" being analysed to "kuh" "oh" "tuh" and then synthesised to "cot". The main advantage of this approach is that it enables learners to "build up" by sounding out, and hopefully recognising, words that they have not met previously in printed form. It is sometimes referred to as the "phonetic" method, although phonetic symbols are not used with the learners.

One obvious disadvantage of the method is the lack of consistent letter-sound relationships in English spelling. Another disadvantage is that there is often a difference between the pronunciation of letters in isolation and the sounds represented by the same letters in a word. Thus in the previous example, neither "c" nor "t" are pronounced in the same way in isolation as they are in the word "cot". In order to make an appropriate synthesis, native speakers of English who are learning to read will be helped by already knowing the word "cot". Thus clues gained from the "sounding out" of "kuh" "oh" "tuh" can help learner readers to identify the written word with the item "cot" which is part of their linguistic competence, and whose meaning they will already know.

Clearly if the reader does not know the word, arriving at an appropriate synthesis of the "sounded out" letters will be difficult. Even if the synthesis is appropriate however, this alone will not help the reader to understand the word.

### **Whole Word and Whole Sentence ("Look and Say")**

Here learners are presented with the written versions of whole words, phrases or

sentences, which are read aloud by the teacher, often through the use of flash cards or words written on the blackboard. Pupils are expected to memorise them through repetition, and recognise them as wholes. The claimed advantage of this is that it facilitates rapid recognition of whole units, rather than depending on a laborious letter-by-letter strategy, and as such, that it approximates more closely to the fluent reading of a proficient reader. The disadvantage is that it does not help learners to work out for themselves words that they have not already met in print.

A further point to note is that for native speaker readers attention to meaning will not normally be crucial, or even necessary, since such learners will by definition understand what they are repeating. In a second/foreign language situation however, there is a clear danger that learners will simply repeat without understanding.

The method is sometimes referred to as the "look-and-say" method, or the "global" method.

### **The Language Experience Method**

This is an integrated approach to both reading and writing which exists in different versions, of which the best known is *Breakthrough to Literacy* (Mackay et al, 1979) which has been adapted for use with indigenous languages in various Southern African countries. The basic components, however, are that the learner tells the teacher what he or she wants to say (often only one sentence). The teacher writes this down and the child reads it - facilitated, of course, by the fact that the child created the sentence in the first place. The child then copies the sentence. Both the phonic and whole word methods may be incorporated into this approach.

The advantage of this method is that the child will immediately be able to attribute meaning to what he or she says. The disadvantage is that the approach may be cumbersome to use with a large class, although it can be adapted to such situations. The method assumes the child knows enough language to be able to express itself, as would normally be the case with native speakers for whom the approach was developed.

### **A Note on Pre-Reading Experience**

A further point concerning initial reading, is research evidence (Bradley and Bryant, 1983) that appreciation of the phonemic structure of spoken words is a causal factor in learning to read. In crude terms this means that initial readers are helped if they already have an idea that words are made of sounds. Such appreciation is fostered by rhymes, songs and word play which through minimal pairs (eg shells, bells) or contrastive addition (eg row/grow) alert learners to the phonemic system. Thus, irrespective of the language concerned, the development of initial reading skill is partly a function of pre-

reading experiences, not connected with written language, (One may hypothesise, again in crude terms, that knowing that spoken words are made up of different sounds, helps learners to appreciate that letters in written words represent sounds.)

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## Appendix C - The testing of reading abilities

Reading is a difficult skill to test, since the product of reading in "real life" is usually not an observable response, but a change in cognitive structure (ie the reader has acquired some information). In a **test** of reading, however, the reader has to provide an observable response according to the test format.

A reading test is an indirect measure of comprehension of text. The reasons are:

- (i) the test items might not adequately represent the text.
- (ii) the testee might understand the text, but fail to understand the test items themselves.
- (iv) the testee might understand the text and the test items but not have the productive ability to answer the test items.

Additionally, there is the general point that all reading tests interfere with the process of reading, though to different degrees. Some of the most common group test techniques (ie those which permit a group of individuals to be tested simultaneously) are listed below, together with the principal drawbacks:

- (i) wh- open-ended questions
  - require written production, therefore test more than reading
- (ii) yes/no questions
  - limited in scope; answers may be guessed
- (iii) true/false



- limited in scope; answers may be guessed

(iv) multiple choice

- the options offered distract from the text, and may confuse readers who have actually understood the text

(v) identifying main points

- not very sensitive; requires writing; difficult to assess objectively

(vi) summary writing

- a very indirect measure of reading; requires writing; difficult to assess objectively

(vii) cloze test

- see next section below.

## **Cloze Formats**

In the "standard" cloze deletions are made every nth word, and testees have to fill the gaps with no options provided. This format was piloted for this project, but rejected on the grounds that:

(i) nth word deletion can generate a large proportion of items with largely syntactic function. Speakers of Bantu languages learning English often have difficulty with such elements in English, particularly the pronoun system, determiners, and prepositions. Although learners can generally interpret these elements in context, it is probable that a test where a significant proportion of items requires production of syntactic elements will under-represent the reading comprehension of children in Zambia.

(ii) "standard" cloze requires testees to be able to produce words from their own knowledge to fill the gaps. Since learners generally are believed to recognise more words than they can produce, then a reading test which aspires to construct validity should require testees to produce as little as possible.

(iii) marking of standard cloze tests poses problems. Marking on an "exact word" basis (ie accepting only the word originally deleted as correct) tends to generate very low raw scores at elementary levels, which gives rise to insufficient discrimination between testees, while marking on an "acceptable word" basis is subjective.

However, the cloze format can be modified so as to overcome the difficulties mentioned above. After piloting of two cloze formats it was decided to construct a modified version in which deletions were manipulated so that there was a low proportion of syntactic elements in the test items. In addition the correct answers were provided in jumbled order in a box above each paragraph. The box also contained an extra 50% of distractors, so that the last item could not be completed by elimination. To avoid overloading the testee's memory no passage had more than 6 deletions.

The technique is best illustrated by looking at an example taken from the project test, for example "Msekas's father" (see Appendix E, p 37).

A test of this type requires not reading aloud, but understanding of the text. It also requires no production of language, but simply identification and copying from the box. In order to fill the gaps successfully the testee has to understand the immediate sentence context, and in some cases the inter-sentence context.

Providing the correct answer is sometimes a matter of sensitivity to discourse, rather than a matter of grammatical acceptability. Thus in the case of the first item above "white" would be a grammatically acceptable response, but "seven" is preferred as demonstrating awareness of the sentential context. Again "trees" is grammatically acceptable for item 3, but demonstrates a lack of awareness of the previous discourse, and furthermore means that there is no sensible referent for "They" which begins the following sentence.

It is obviously not "natural" reading, in that a gapped text is not a "natural" text. Nevertheless it seemed to be the group test format that did least violence to the process of reading a text, while at the same time yielding a reasonable number and proportion of items per line of text. It is also a format that is similar to the exercises that children would be familiar with from exercises and tests that the teachers set them.

### **Read Aloud as a Testing Technique**

This is a widespread technique whereby children read aloud a text individually and are then usually asked to answer questions or talk about what they have read. Elaborate systems of analysing deviancies from the text (or "miscues") have been constructed (eg Goodman 1973), and standardised tests based on this techniques are used in the United

Kingdom (eg Vincent and de la Mare, 1990). The testee is assessed in terms of the reading and also the answers to the questions.

The main problems with this techniques are:

(i) that the correlation between accuracy of reading aloud and degree of comprehension is difficult to establish particularly in second/foreign language teaching

(ii) answering the questions depend not only on understanding the text, but also on understanding the questions, and also on having the productive capacity to formulate and answer. They are therefore indirect measures of comprehension.

Having pointed out those objections, however, the read aloud plus questions format can, assuming the testee has adequate language knowledge, be helpful, certainly at the extremes of reading proficiency. For example if, when faced with a very simple text, a testee says nothing, or something quite unrelated to the text, then this could suggest that the child cannot read that passage, and possibly cannot read. On the other hand, if a testee reads a text fluently and accurately, and answers all the questions correctly, then it is reasonable to assume that he or she can read.

If a testee's performance is between these two extremes, however, as is most often the case, then assessing reading comprehension can be a rather subjective process, especially if the testee is reading in a foreign or second language.

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## Appendix D - Read aloud test

### Passage 1



Muno is playing with a ball.  
He is playing under the tree

### Passage 2



Mary is holding some tomatoes.  
They are red.  
She likes to eat them.

### Passage 3



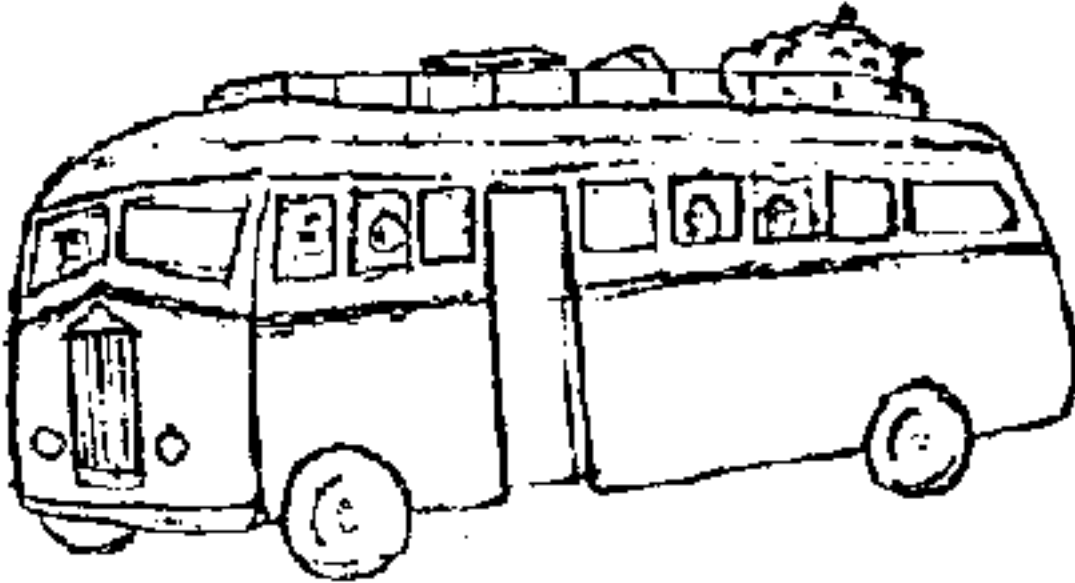
Miss Moyo is a teacher.  
Sara and Miriam are in Miss Moyo's class.  
One day they gave her some flowers.  
She was very happy and she put them on her table.  
"Thank you, girls," she said.

#### Passage 4



When Robert was a little boy he was very sick, so he went with his mother to the hospital. A nurse took Robert and his mother to a big room and she put him into a bed. Later the doctor came and looked at Robert. "You'll soon be better!" he said.

### Passage 5



Simon and his sister Ruth went by bus to visit their uncle. As the bus was going over a bridge they heard a loud noise. The driver stopped the bus and got out. A large sack of potatoes had fallen from the roof. It had burst open, and there were potatoes everywhere on the road. Simon and Ruth helped to pick them up and put them back in the sack. The sack was so heavy that two men had to help the driver to lift it onto the roof of the bus.

### READ ALOUD QUESTIONS

#### Passage 1

1. What is Muno doing?
2. Where is Muno playing?

#### Passage 2

1. What is Mary holding?
2. What does Mary like to eat?
3. What colour are the tomatoes?

#### Passage 3

1. Who is Miss Moyo?
2. Where did Miss Moyo put the flowers?
3. Why was Miss Moyo happy?

#### **Passage 4**

1. Where did Robert go?
2. Why did Robert go to the hospital?
3. Where did the nurse put Robert?
4. What did the Doctor say?

#### **Passage 5**

1. Did Simon and Ruth go in a car?
2. Where were they going?
3. Why did the driver stop the bus?
4. What made the loud noise?
5. How did Simon and Ruth help?
6. Why did the two men help the driver?

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# Appendix E - Word find reading test: Extracts

## WORD FIND V.01

Surname..... Today's date.....  
First name..... Date of birth.....  
Grade or Standard..... Sex (boy or girl).....  
School..... Age.....years.....months  
Mother's work..... Father's work.....  
Language(s) you speak at home.....

## Practice Section

### The Ball

and ball the red like cow

Three children are playing with a red ball. Siwa is throwing the ball to Simon. He catches it and throws it to Maria. They like playing with the ball.

### Sifo's father

garden helps dog early tomatoes all

Sifo's father is a farmer. He has a big garden. It is near his village. Every day he gets up \_\_\_\_\_ and walks to his \_\_\_\_\_. He grows a lot of beans and \_\_\_\_\_ and maize. Sifo \_\_\_\_\_ him in the garden.

**Do not turn over until you are told**

**EXTRACT FROM SUBTEST 1**

## Mseka's father

water teacher white them trees eat  
seven goats go

Mseka's father has three cows and \_\_\_\_\_ goats. The cows are black and \_\_\_\_\_.  
The \_\_\_\_\_ are brown. They \_\_\_\_\_ grass and drink \_\_\_\_\_ from the river.  
On Saturday, when Mseka doesn't \_\_\_\_\_ to school, he looks after them.

## EXTRACT FROM SUBTEST 2

finished Tortoise ran easily looked started

The race \_\_\_\_\_. Kalulu ran very fast. After a few minutes he \_\_\_\_\_ behind. He  
couldn't see \_\_\_\_\_. "I am going to win this race \_\_\_\_\_," he said to himself.

## EXTRACT FROM SUBTEST 3

### In the Cave

left explore arrived played lamp mountain

Simon and his sister Maria decided to \_\_\_\_\_ a cave in a \_\_\_\_\_ near their town.  
They took some oranges, a candle and \_\_\_\_\_ a box of matches and early the next  
morning. At midday, they \_\_\_\_\_ at the cave and went in.

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# Appendix F - Nyanja reading test: Extracts

V.01

Dzina..... Tsiku lobadwa.....  
Kalasi..... Mwamuna/mkazi.....  
Sukulu..... Chilakulo canu.....

**Ndime Yophunzirira**

**Mpira**

ng'ombe amakonda wofiyira ndipo ndi mpira

Ana atatu ali kusewela ndi mpira \_\_\_\_\_. Siwa ali kuonyera \_\_\_\_\_ kwa Simon.  
Iye awungwira \_\_\_\_\_ kuonyera kwa Maria. Onse \_\_\_\_\_ kusewela ndi mpira.

**Atate ace a Mumbi**

amawathandiza m'mawa matimati onse kudimba galu

Atate ace a Mumbi ndi mlimi. Ali ndi dimba lalikulu. Liri pafupi ndi mudzi wawo.  
Matsiku onse amauka \_\_\_\_\_ ndi kuyenda \_\_\_\_\_ kwao. Amalima nyemba,  
\_\_\_\_\_ mdi cimanga cabiri. Mumbi \_\_\_\_\_ kudimba.

**Miriamu**

amayenda atate      amakonda Sayenda iye  
wamkazi kanyumba Iwo      Amakhala

Miriam ali ndi zaka khumi. Ali ndi mung'ono wace wamwamuna ndi wamkazi.

\_\_\_\_\_ mu \_\_\_\_\_ kakang'ono ndi amai ndi \_\_\_\_\_ awo. Matsiku onse Miriam ndi mung'ono wace wamwamuna \_\_\_\_\_ kusukulu. Mung'ono wace \_\_\_\_\_ Jelita ali ndi zaka ziwiri. kusukulu.

### **Atate ace a Sifo**

madzi aphunzitsi mauzu woyera Iwo  
sayena mitengo zitatu Mbuzi

Atae ace a Sifo ali ndi ng'ombe \_\_\_\_\_ ndi mbuzi zisanu ndi ziwiri. Ng'ombe ndi \_\_\_\_\_ za mawanga akuda ndi. \_\_\_\_\_ ndi zakatondo. Simadya \_\_\_\_\_ ndi kumwa akumsinje. Tsiku loweruka, pamene Sifo \_\_\_\_\_ ku sukulu, amaziyang'anira.

### **Mabvuto ndi njinga yace**

iyeye imodzi munjira kukuwa suga kuyenda

Mabvuto akuyendetsa njinga yace \_\_\_\_\_. Ali \_\_\_\_\_ ku sitoro kukagula \_\_\_\_\_. Pali galu pabwalo mwa \_\_\_\_\_ ya nyumbazo.

kukuwira galu imayamba munjira basiketi pansu

Ngati yawona Mabvuto \_\_\_\_\_ kumuthamangitsa. Basiketi ya mabvuto yagwa \_\_\_\_\_. Mzimai atuluka mnyumba ndi \_\_\_\_\_ galu. Ndipo atenga \_\_\_\_\_ ndikumupatsa Mabvuto.

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## Appendix G - Texts for two lessons

Copied on the board by Grade 3 Teacher, School I (from Zambia Primary Course, Reader 3)

3. *"Look at that hippo's mouth. Father. It is very big isn't it?" said Chuma. "Yes, hippos have very big mouths," said his father. "Crocodiles have very big mouths too."*

4. *Chuma and his father walked away from the river. They walked away from the crocodiles. They walked away from the hippos. Now they were walking between the trees. Chuma liked to walk between the trees. They walked slowly and quietly between the trees. They were walking slowly and quietly when they saw a very big rhino. The rhino was near a tree and he was eating grass.*

Copied on the board by Grade 4 Teacher, School I. (from Zambia Primary Course, Reader 4)

### *Lost in the Bush*

1. *Mr and Mrs Sampa live in Chemba Village. They have two daughters. One doesn't live with them. She lives in Kitwe. But their other daughter lives with them. Her name is Katalina, and she is eight years old. Katalina is a good daughter. Sometimes she cleans the house and cooks the food. She goes to school every day. In the afternoon, she plays with her friends.*

2. *Chemba Village isn't near a town. It is in the bush. Katalina's mother says, "You mustn't play in the bush, Katalina. And you mustn't walk in the bush alone. There are lots of holes in the ground. If you go near the holes, you'll fall into one of them. If you're alone, nobody will pull you out. There are lots of animals, too. If they see you alone they will chase*

*you. You must never walk in the bush alone".*

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# Appendix H - Transcript of a lesson

Zambia: Lusaka Rural. School I, Grade 3.

Number in class = 45 (20 boys, 25 girls)

T: English reading. We are going to read the story that is Chuma and the Rhino. That is paragraph 3 and 4, which has been written on the board. Who can read the first sentence in paragraph 3? Yes, (??)

P: Look at that hippo's mouth father

T: Read aloud.

P: Look at that hippo's mouth father.

T: Once more.

P: Look at that hippo's mouth father.

T: Yes. The sentence is "Look at that hippo's mouth father".

Class: Look at that hippo's mouth father.

T: Look at that hippo's mouth father.

Class: Look at that hippo's mouth father.

T: Yes. (Points) What is that sentence? Who can read the next sentence? Simon?

P: It is very big isn't... isn't it, said Chuma.

T: Again.

P: It is very big isn't it, said Chuma.

T: Thank you. The sentence is: It is very big isn't it, said Chuma. Read.

Class: It is very big isn't it, said Chuma.

T: It is very big isn't it, said Chuma.

Class: It is very big isn't it, said Chuma. T: Big. Class: Big. T: Big. Class: Big.

T: It is very big isn't it, said Chuma.

Class: It is very big isn't it, said Chuma.

T: OK. (moves desk) Who can read the next sentence? Navis(?)

P: Now, hippos have very-

T: Is this word "now"?

P: Now -

T: No, no, no, no...

P: Yes, hippo have very big... Yes, hippos have very big mouths, said his mother.

T: Thank you. Uh, what's that word?

P: Father.

T: OK. Yes, hippos have very big mouths said his father. Read.

Class: Yes, hippos have very big mouths, said his father.

T: Yes, hippos have very big mouths, said his father.

Class: Yes, hippos have very big mouths said his father.

T: Say mouths.



Class: Mouths.

T: Don't say "mouths", say "mouths".\*

P: Mouths.

T: Yes, hippos have very big mouths, said his father.

Class: Yes, hippos have very big mouths, said his father.

T: The next sentence. Musa.

P: Crocodiles have very big mouths too.

T: Again.

P: Crocodiles have very big mouth too.

T: Mmm. Who can - who can help him??

F: Crocodiles have very big mouths too.

T: Thank you. Crocodiles have very big mouths too.

Read. Crocodiles have very big mouths too.

Class: Crocodiles have very big mouths too.

T: Crocodiles.

Class: Crocodiles.

T: Crocodiles.

Class: Crocodiles.

T: Crocodiles have very big mouths too.

Class: Crocodiles have very big mouths too.

T: OK. Paragraph four. The first sentence.

P: Chuma and his father walked away from the river.

T: Again.

P: Chuma and his father walked away from the river.

T: Yes, that is the sentence. Chuma and his father walked away from the river. Read.

Class: Chuma and his father walked away from the river.

T: Walked.

Class: Walked.

T: Walked.

Class: Walked.

T: Read the sentence.

Class: Chuma and his father walked away from the river.

T: Next sentence? Then...

P: They... they walked away from the crocodiles.

T: Yes. They walked away from the crocodiles. Read.

Class: They walked away from the crocodiles.

T: Read this word as "walked." Say "walked."\*

Class: Walked.

T: Now read the sentence.

Class: They walked away from the crocodiles.

T: Now this.

P: They walked away from the hippos.

T: Again.

P: They walked away from the hippos.

T: They walked away from the hippos. Read.

Class: They walked away from the hippos.

T: Next sentence.

P: (Inaudible) Now they.. now they... now they were walking between the trees.

T: Again.

Class: Now they were walking between the trees.

T: OK, that is correct. Now they were walking between the trees. Read.

Class: Now they were walking between the trees.

T: Now they were walking between the trees.

Class: Now they were walking between the trees.

T: Next sentence. (Nyanja: Don't look at the white man.) Look at the board. Look at the board. Look at the board.

P: (??)

T: (Writes on the board).

T: Yes.

P: Chuma likes to walk between the trees.

T: Again.

P: Chuma liked to walk between the trees.

T: Thank you. Chuma liked to walk between the trees.

Class: Chuma liked to walk between the trees.

T: Chuma liked to walk between the trees.

Class: Chuma liked to walk between the trees.

T: Liked

Class: Liked

T: Liked

Class: Liked

T: Chuma liked to walk between the trees.

Class: Chuma liked to walk between the trees.

T: Liked, liked. You're still saying "liked". Say "liked".\* Read the word as "liked".  
Chuma liked to walk between the trees.

Class: Chuma liked to walk between the trees.

T: Next sentence. What are they doing? (Nyanja)

P: They walked ..they walked slowly and quietly between the trees.

T: No.

P: They walked slowly and quietly between the trees.

T: Again. They-

P: They walked slowly and quietly between the trees.

T: OK. They walked slowly and quietly between the trees. Read.

Class: They walked slowly and quietly between the trees.

T: Again.

Class: They walked slowly and quietly between the trees.

T: Yes.

P: They were walking slowly and quietly when they saw a very big rhino.

T: (??) Read the sentence.

P: They were walking slowly and quietly when they saw a very big rhino.

T: Yes. They were walking slowly and quietly when they saw a very big rhino. Read.

Class: They were walking slowly and quietly when they saw a very big rhino.

T: They. Say they.

Class: They.

T: They.

Class: They.

T: Now read the sentence once more.

Class: They were walking slowly and quietly when they saw a very big rhino.

T: Yes. Segono. (??) The last sentence.

P: (??)

T: (Nyanja) Right.

P: The rhino was near a tree and he was eating grass.

T: Thank you. The rhino was near a tree and he was eating grass. Read.

Class: The rhino was near a tree and he was eating grass.

T: The rhino was near a tree and he was eating grass.

Class: The rhino was near a tree and he was eating grass.

T: OK. Now who can read paragraph three? Paragraph three. Ben.

P: Look at ..Look at that...that...that...that hippo mouth Father.

T: Hippo's. Hippo's.

P: Hippo's mouth father. It is very big.. it.. it... isn't it?

T: Isn't it?

P: Isn't it said Chuma.

T: Start again. Start again.

P: Look at... look at that hippo's mouth father. It is very big isn't it, said Chuma. Said hippos....

T: No, no, no. What's the word. Not said.

P: (Whispers: Yes)

P: Yes, hippos... hippos have very big mouth.. mouths said his father. Crocodiles have very big mouths too.

T: OK, that's alright. It's alright. Let's see, yes, Samuel.

P: Look at that hippo's mouth. Father. It is very big... it... it is very big isn't it, said Chuma. Yes... yes... hippos very big...

T: Have

P: Yes hippos very very big mouth said his father. Yes hippos very...

T: Have very big mouths.

P: Yes, hippos have very big mouths said his father. Crocodiles, crocodiles have very big mouths too.

T: Thank you. OK. Look at that hippo's mouth father. It is very big isn't it? said Chuma. Yes, hippos have very big mouths, said his father. Crocodiles have very big mouths too. Together read that paragraph.

Class: Look at that hippo's mouth father. It is very big isn't it? said Chuma. Yes, hippos have very big mouths, said his father. Crocodiles have very big mouths too.

T: OK. The fourth paragraph. You.

P: Chuma and his father walked away from the river. They walked away from the crocodiles. They walked away from the hippos. Now they were walking between the trees. Chuma liked to walk between the trees.

Y: OK that's very nice. Another one? (???) Musa.

P: Chuma and his father walked away from the river. They walked away.

T: They walked.

P: They walked away from the river, and they walked away from the crocodiles. They walked away from the hippos. Now they were walking between the trees. Chuma liked to walk between the trees.

T: Thank you. Chuma and his father walked away from the river. They walked away from the crocodiles. They walked away from the hippos. Now they were walking between the trees. Read the sentences.

Class: Chuma and his father walked away from the river. They walked away from the crocodiles.

T: They walked away from the crocodiles.

Class: They walked away from the crocodiles. They walked away from the hippos.

T: They walked away from the hippos.

Class: They walked away from the hippos.

T: You mustn't say "walked", "walked". Say "walked".\*

Class: Walked.

T: Walked.

Class: Walked.

T: They walked away from the hippos.

Class: They walked away from the hippos.

T: The next sentence.

Class: Now they were walking between the trees.

T: Thank you. The next sentences (writes). Try.

P: They walked slowly and quietly between the trees.

T: (Nyanja) Read.

P: They...

T: They walked slowly.

P: They walked slowly between the trees.

T: Come in. Come in. (A pupil enters).

P:... the trees.

T: Sit down. Sit down. Sit down. Sit down. Sit down. Yes, (??)

P: (???) They walked slowly and quietly between the trees. They were walking slowly and quietly when they saw a very big rhino. The rhino was near a tree and he was eating grass.

T: OK. Thank you. Now... They were... Sorry. They walked slowly and quietly between the trees. They walked slowly and quietly between the trees. They were walking slowly and quietly when they saw a very big rhino. The rhino was near a tree and he was



eating grass. Read the sentences.

Class: They walked slowly and quietly between the trees. They walked slowly and quietly between the trees. They were walking slowly and quietly when they saw a very big rhino. The rhino was near a tree and he was eating grass.

T: OK.

## **END OF LESSON**

\* I could not perceive any difference between teacher's and pupils' pronunciation of these words.

### **Informal Assessment of Understanding**

After the lesson a brief informal assessment of the pupils' understanding was conducted, as follows:

EW draws a hippo on the board. 5 pupils raise hands to name it in English. First pupil says "Rhino". Second "It's hippo."

Teacher and EW ask for crocodile in Nyanja (or any Zambian language). 6 pupils with raise hands. One girl gives correct answer. One pupil, Rose says "something similar" (according to T).

EW: Writes on board: "The hippo is walking to the river" and asks for volunteers to read it. About 10 people put up hands. First reads it successfully.

EW & Teacher ask for river in any language. 4 pupils raise hands. First gives the word for "damn". Second gives word for river.

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# Appendix I - Descriptive statistics for English word find reading test

Descriptive statistics for total score in English (Total number of items: 60)

OBS	YEAR	SCHOOL	SEX	N	MEAN	SD	MAX	MEDIAN	MIN
1	3	C	B	17	2.1176	2.3152	7	1.0	0
2	3	C	G	22	2.2727	2.0972	7	2.0	0
3	3	D	B	6	2.8333	2.4833	6	1.5	1
4	3	D	G	4	2.7500	2.6300	5	3.0	0
5	3	J	B	13	11.5385	10.3006	36	7.0	1
6	3	J	G	22	15.0909	11.3847	43	11.0	2
7	3	K	B	17	3.3529	3.3901	11	2.0	0
8	3	K	G	17	3.8824	2.3686	9	4.0	1
9	3	T	B	14	0.5714	0.8516	2	0.0	0
10	3	T	G	19	1.2632	0.8719	3	1.0	0
11	4	C	B	24	7.8750	3.5912	14	8.5	1
12	4	C	G	13	6.4615	3.4306	13	6.0	2
13	4	D	B	8	11.0000	8.2635	26	11.0	1
14	4	D	G	10	3.7000	3.6833	10	2.0	0
15	4	J	B	17	16.2353	12.4976	40	10.0	3
16	4	J	G	17	27.2941	17.3016	53	29.0	5
17	4	K	B	17	12.6471	8.1236	28	9.0	2
18	4	K	G	8	9.7500	5.1478	22	8.0	6
19	4	T	B	12	7.8333	4.2391	16	7.0	2
20	4	T	G	22	7.5455	3.8635	16	7.0	2
21	6	C	B	12	13.5833	9.7743	31	10.0	1

22	6	C	G	12	24.1667	8.4297	41	24.5	14
23	6	D	B	16	24.6875	12.1914	46	26.5	8
24	6	D	G	20	25.6000	9.7030	39	27.5	4
25	6	J	B	15	43.9333	11.0290	55	46.0	11
26	6	J	G	15	46.8000	7.0933	57	47.0	29
27	6	K	B	18	28.3333	5.6672	38	29.0	15
28	6	K	G	15	22.7333	10.4092	48	22.0	5
29	6	T	B	18	23.1667	15.6478	60	22.0	3
30	6	T	G	12	25.8333	11.9608	48	25.5	9

OBS	YEAR	SCHOOL	N	MEAN	SD	MAX	MEDIAN	MIN
1	3	C	39	2.2051	2.1665	7	1.0	0
2	3	D	10	2.8000	2.3944	6	1.5	0
3	3	J	35	13.7714	10.9788	43	11.0	1
4	3	K	34	3.6176	2.8921	11	3.0	0
5	3	T	33	0.9697	0.9180	3	1.0	0
6	4	C	37	7.3784	3.5540	14	7.0	1
7	4	D	18	6.9444	7.0166	26	6.0	0
8	4	J	34	21.7647	15.8861	53	15.5	3
9	4	K	25	11.7200	7.3230	28	8.0	2
10	4	T	34	7.6471	3.9380	16	7.0	2
11	6	C	24	18.8750	10.4354	41	17.0	1
12	6	D	36	25.1944	10.7247	46	27.5	4
13	6	J	30	45.3667	9.2270	57	46.5	11
14	6	K	33	25.7879	8.5138	48	27.0	5
15	6	T	30	24.2333	14.1267	60	24.5	3

OBS	YEAR	SEX	N	MEAN	SD	MAX	MEDIAN	MIN
1	3	B	67	4.0000	6.2304	36	2.0	0
2	3	G	84	5.7500	8.2153	43	3.0	0
3	4	B	78	11.0513	8.3695	40	9.0	1
4	4	G	70	11.8429	12.6784	53	7.5	0

5	6	B	79	27.1392	14.5591	60	28.0	1
6	6	G	74	29.1216	13.0005	57	29.0	4

OBS	YEAR	N	MEAN	SD	MAX	MEDIAN	MIN
1	3	151	4.9735	7.4287	43	2	0
2	4	148	11.4257	10.5972	53	8	0
3	6	153	28.0980	13.8178	60	29	1

### Descriptive statistics for score on items 1-20 in English

OBS	YEAR	SCHOOL	SEX	N	MEAN	SD	MAX	MEDIAN	MIN
1	3	C	B	17	1.5882	1.90587	6	1.0	0
2	3	C	G	22	1.9091	1.97386	7	1.0	0
3	3	D	B	6	2.8333	2.48328	6	1.5	1
4	3	D	G	4	2.7500	2.62996	5	3.0	0
5	3	J	B	13	8.3846	7.00641	19	5.0	1
6	3	J	G	22	8.7727	6.04689	20	9.5	0
7	3	K	B	17	2.4706	2.03463	6	2.0	0
8	3	K	G	17	3.5882	2.31999	8	3.0	0
9	3	T	B	14	0.5714	0.85163	2	0.0	0
10	3	T	G	19	1.2632	0.87191	3	1.0	0
11	4	C	B	24	5.3750	3.01896	10	5.5	1
12	4	C	G	13	4.2308	3.81125	12	3.0	0
13	4	D	B	8	8.3750	6.82302	17	9.0	0
14	4	D	G	10	3.6000	3.50238	9	2.0	0
15	4	J	B	17	9.6471	6.71697	20	5.0	3
16	4	J	G	17	12.3529	6.99947	20	14.0	1
17	4	K	B	17	6.1765	5.89741	17	3.0	0
18	4	K	G	8	5.8750	4.08613	13	5.5	1
19	4	T	B	12	4.6667	2.10339	8	4.0	1
20	4	T	G	22	3.8182	2.30189	9	4.0	0
21	6	C	B	12	6.9167	5.08935	15	6.5	1

22	6	C	G	12	12.0000	3.90803	19	12.0	5
23	6	D	B	16	12.8125	5.36928	20	14.0	4
24	6	D	G	20	13.3000	4.53176	19	14.0	3
25	6	J	B	15	17.9333	3.65409	20	19.0	5
26	6	J	G	15	19.0000	1.25357	20	19.0	16
27	6	K	B	18	15.4444	2.12055	18	16.0	10
28	6	K	G	15	11.4000	4.06729	18	11.0	3
29	6	T	B	18	11.7222	6.92655	20	12.0	3
30	6	T	G	12	14.0000	4.70976	20	15.0	6

OBS	YEAR	SCHOOL	N	MEAN	SD	MAX	MEDIAN	MIN
1	3	C	39	1.7692	1.92575	7	1.0	0
2	3	D	10	2.8000	2.39444	6	1.5	0
3	3	J	35	8.6286	6.32030	20	7.0	0
4	3	K	34	3.0294	2.22227	8	2.5	0
5	3	T	33	0.9697	0.91804	3	1.0	0
6	4	C	37	4.9730	3.31232	12	5.0	0
7	4	D	18	5.7222	5.62354	17	4.0	0
8	4	J	34	11.0000	6.89312	20	11.0	1
9	4	K	25	6.0800	5.29874	17	3.0	0
10	4	T	34	4.1176	2.23965	9	4.0	0
11	6	C	24	9.4583	5.14130	19	11.0	1
12	6	D	36	13.0833	4.85431	20	14.0	3
13	6	J	30	18.4667	2.73840	20	19.0	5
14	6	K	33	13.6061	3.71601	18	14.0	3
15	6	T	30	12.6333	6.15032	20	14.5	2

OBS	YEAR	SEX	N	MEAN	SD	MAX	MEDIAN	MIN
1	3	B	67	3.0299	4.35532	19	1	0
2	3	G	84	3.9405	4.55052	20	2	0
3	4	B	78	6.6795	5.25825	20	5	0
4	4	G	70	6.1714	5.62595	20	5	0

5	6	B	79	13.2405	5.92521	20	15	1
6	6	G	74	13.9730	4.66691	20	14	3

OBS	YEAR	N	MEAN	SD	MAX	MEDIAN	MIN
1	3	151	3.5364	4.47329	20	2	0
2	4	148	6.4392	5.42239	20	5	0
3	6	153	13.5948	5.34893	20	14	1

### Descriptive statistics for score on items 21-40 in English

OBS	YEAR	SCHOOL	SEX	N	MEAN	SD	MAX	MEDIAN	MIN
1	3	C	B	17	0.3529	0.70189	2	0.0	0
2	3	C	G	22	0.3636	0.84771	3	0.0	0
3	3	D	B	6	0.0000	0.00000	0	0.0	0
4	3	D	G	4	0.0000	0.00000	0	0.0	0
5	3	J	B	13	1.9231	4.03033	15	1.0	0
6	3	J	G	22	4.3182	5.03688	16	3.0	0
7	3	K	B	17	0.5882	1.58346	6	0.0	0
8	3	K	G	17	0.1176	0.33211	1	0.0	0
9	3	T	B	14	0.0000	0.00000	0	0.0	0
10	3	T	G	19	0.0000	0.00000	0	0.0	0
11	4	C	B	24	1.7500	1.39096	5	2.0	0
12	4	C	G	13	1.1538	1.14354	3	1.0	0
13	4	D	B	8	1.8750	3.18198	9	0.5	0
14	4	D	G	10	0.1000	0.31623	1	0.0	0
15	4	J	B	17	5.1176	5.26643	15	4.0	0
16	4	J	G	17	9.4118	6.86530	20	9.0	0
17	4	K	B	17	2.6471	2.73727	10	3.0	0
18	4	K	G	8	1.8750	2.23207	5	1.0	0
19	4	T	B	12	2.0000	1.95402	6	1.5	0
20	4	T	G	22	2.2727	1.66710	6	2.5	0
21	6	C	B	12	3.8333	3.76185	12	2.0	0

22	6	C	G	12	7.1667	3.09936	13	7.5	2
23	6	D	B	16	7.2500	5.56776	18	6.0	0
24	6	D	G	20	7.8000	4.61804	17	8.0	1
25	6	J	B	15	16.2667	4.07898	20	17.0	6
26	6	J	G	15	17.1333	2.47463	20	17.0	11
27	6	K	B	18	8.7222	3.26849	15	9.0	2
28	6	K	G	15	7.1333	4.73387	18	7.0	0
29	6	T	B	18	7.5556	5.53303	20	5.5	0
30	6	T	G	12	7.5833	4.42017	17	7.0	1

OBS	YEAR	SCHOOL	N	MEAN	SD	MAX	MEDIAN	MIN
1	3	C	39	0.3590	0.77755	3	0.0	0
2	3	D	10	0.0000	0.00000	0	0.0	0
3	3	J	35	3.4286	4.77300	16	2.0	0
4	3	K	34	0.3529	1.15161	6	0.0	0
5	3	T	33	0.0000	0.00000	0	0.0	0
6	4	C	37	1.5405	1.32486	5	1.0	0
7	4	D	18	0.8889	2.24628	9	0.0	0
8	4	J	34	7.2647	6.40695	20	6.5	0
9	4	K	25	2.4000	2.56580	10	2.0	0
10	4	T	34	2.1765	1.74895	6	2.0	0
11	6	C	24	5.5000	3.77636	13	5.5	0
12	6	D	36	7.5556	4.99396	18	8.0	0
13	6	J	30	16.7000	3.34406	20	17.0	6
14	6	K	33	8.0000	4.01559	18	8.0	0
15	6	T	30	7.5667	5.03562	20	7.0	0

OBS	YEAR	SEX	N	MEAN	SD	MAX	MEDIAN	MIN
1	3	B	67	0.61194	2.03719	15	0.0	0
2	3	G	84	1.25000	3.16561	16	0.0	0
3	4	B	78	2.73077	3.32903	15	2.0	0
4	4	G	70	3.44286	4.96257	20	2.0	0

5	6	B	79	8.84810	5.94222	20	8.0	0
6	6	G	74	9.41892	5.55177	20	8.5	0

OBS	YEAR	N	MEAN	SD	MAX	MEDIAN	MIN
1	3	151	0.96689	2.73354	16	0	0
2	4	148	3.06757	4.18234	20	2	0
3	6	153	9.12418	5.74493	20	8	0

### Descriptive statistics for score on items 41-60 in English

OBS	YEAR	SCHOOL	SEX	N	MEAN	SD	MAX	MEDIAN	MIN
1	3	C	B	17	0.1765	0.39295	1	0.0	0
2	3	C	G	22	0.0000	0.00000	0	0.0	0
3	3	D	B	6	0.0000	0.00000	0	0.0	0
4	3	D	G	4	0.0000	0.00000	0	0.0	0
5	3	J	B	13	1.2308	1.92154	7	1.0	0
6	3	J	G	22	2.0000	2.22539	7	1.0	0
7	3	K	B	17	0.2941	0.98518	4	0.0	0
8	3	K	G	17	0.1765	0.52859	2	0.0	0
9	3	T	B	14	0.0000	0.00000	0	0.0	0
10	3	T	G	19	0.0000	0.00000	0	0.0	0
11	4	C	B	24	0.7500	1.25974	5	0.0	0
12	4	C	G	13	1.0769	1.84669	6	0.0	0
13	4	D	B	8	0.7500	1.48805	4	0.0	0
14	4	D	G	10	0.0000	0.00000	0	0.0	0
15	4	J	B	17	1.4706	2.34834	9	0.0	0
16	4	J	G	17	5.5294	5.29289	15	3.0	0
17	4	K	B	17	3.8235	2.96301	11	3.0	0
18	4	K	G	8	2.0000	1.60357	4	2.0	0
19	4	T	B	12	1.1667	1.40346	4	0.5	0
20	4	T	G	22	1.4545	1.53459	5	1.0	0
21	6	C	B	12	2.8333	2.24958	6	2.0	0



22	6	C	G	12	5.0000	2.73030	9	5.0	1
23	6	D	B	16	4.6250	3.09570	11	4.0	0
24	6	D	G	20	4.5000	1.82093	7	4.0	0
25	6	J	B	15	9.7333	4.75795	15	10.0	0
26	6	J	G	15	10.6667	4.45079	17	11.0	2
27	6	K	B	18	4.1667	2.45549	9	3.5	0
28	6	K	G	15	4.2000	2.62406	12	4.0	1
29	6	T	B	18	3.8889	5.51883	20	2.0	0
30	6	T	G	12	4.2500	4.35107	15	3.0	0

OBS	YEAR	SCHOOL	N	MEAN	SD	MAX	MEDIAN	MIN
1	3	C	39	0.0769	0.26995	1	0.0	0
2	3	D	10	0.0000	0.00000	0	0.0	0
3	3	J	35	1.7143	2.12231	7	1.0	0
4	3	K	34	0.2353	0.78079	4	0.0	0
5	3	T	33	0.0000	0.00000	0	0.0	0
6	4	C	37	0.8649	1.47502	6	0.0	0
7	4	D	18	0.3333	1.02899	4	0.0	0
8	4	J	34	3.5000	4.52769	15	2.0	0
9	4	K	25	3.2400	2.71232	11	3.0	0
10	4	T	34	1.3529	1.47468	5	1.0	0
11	6	C	24	3.9167	2.68517	9	3.5	0
12	6	D	36	4.5556	2.43128	11	4.0	0
13	6	J	30	10.2000	4.55162	17	11.0	0
14	6	K	33	4.1818	2.49317	12	4.0	0
15	6	T	30	4.0333	5.00678	20	3.0	0

OBS	YEAR	SEX	N	MEAN	SD	MAX	MEDIAN	MIN
1	3	B	67	0.35821	1.06886	7	0	0
2	3	G	84	0.55952	1.43410	7	0	0
3	4	B	78	1.64103	2.31300	11	1	0
4	4	G	70	2.22857	3.45225	15	1	0

5	6	B	79	5.05063	4.48044	20	4	0
6	6	G	74	5.72973	4.03850	17	5	0

<b>OBS</b>	<b>YEAR</b>	<b>N</b>	<b>MEAN</b>	<b>SD</b>	<b>MAX</b>	<b>MEDIAN</b>	<b>MIN</b>
1	3	151	0.47020	1.28482	7	0	0
2	4	148	1.91892	2.91259	15	1	0
3	6	153	5.37908	4.27201	20	4	0

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# Appendix J - Descriptive statistics for Nyanja reading test V.01

Descriptive statistics for total score in Nyanja (Total number of items: 60)

OBS	YEAR	SCHOOL	SEX	N	MEAN	SD	MAX	MEDIAN	MIN
1	3	C	B	17	4.2353	3.0929	10	3.0	0
2	3	C	G	22	3.5909	2.9384	11	3.0	0
3	3	D	B	6	1.3333	1.9664	5	0.5	0
4	3	D	G	4	0.7500	0.9574	2	0.5	0
5	3	J	B	13	5.5385	7.9332	31	3.0	1
6	3	J	G	22	6.6364	7.3000	37	5.0	1
7	3	K	B	17	1.4706	1.2307	4	2.0	0
8	3	K	G	17	1.5294	1.1246	4	1.0	0
9	3	T	B	14	2.2857	1.9386	5	1.0	0
10	3	T	G	19	1.9474	2.3208	10	1.0	0
11	4	C	B	24	8.5000	4.1494	16	8.0	1
12	4	C	G	13	8.4615	5.1739	19	7.0	2
13	4	D	B	8	13.6250	7.5770	27	13.5	4
14	4	D	G	10	6.7000	6.5328	19	4.0	1
15	4	J	B	17	10.5882	4.7045	22	11.0	2
16	4	J	G	17	10.3529	3.7239	19	10.0	4
17	4	K	B	17	3.8235	3.3022	12	3.0	1
18	4	K	G	8	1.7500	1.9086	5	1.5	0
19	4	T	B	12	4.1667	2.4433	9	4.0	1
20	4	T	G	22	6.1364	2.2740	10	6.0	2
21	6	C	B	12	15.1667	9.6090	32	12.5	4

22	6	C	G	12	24.9167	12.5224	44	25.0	4
23	6	D	B	16	22.2500	10.3183	39	24.0	8
24	6	D	G	20	24.7000	11.0220	42	24.5	4
25	6	J	B	15	15.0000	7.9282	31	14.0	5
26	6	J	G	15	16.2000	8.8091	33	13.0	4
27	6	K	B	18	32.7222	7.2583	46	33.0	18
28	6	K	G	15	28.0000	12.6548	45	29.0	6
29	6	T	B	18	17.1111	15.1420	58	12.0	3
30	6	T	G	12	16.0833	11.1637	43	14.0	5

OBS	YEAR	SCHOOL	N	MEAN	SD	MAX	MEDIAN	MIN
1	3	C	39	3.8718	2.9840	11	3.0	0
2	3	D	10	1.1000	1.5951	5	0.5	0
3	3	J	35	6.2286	7.4442	37	4.0	1
4	3	K	34	1.5000	1.1612	4	1.0	0
5	3	T	33	2.0909	2.1413	10	1.0	0
6	4	C	37	8.4865	4.4636	19	8.0	1
7	4	D	18	9.7778	7.6662	27	8.0	1
8	4	J	34	10.4706	4.1796	22	10.5	2
9	4	K	25	3.1600	3.0507	12	2.0	0
10	4	T	34	5.4412	2.4887	10	5.0	1
11	6	C	24	20.0417	11.9981	44	19.5	4
12	6	D	36	23.6111	10.6349	42	24.0	4
13	6	J	30	15.6000	8.2571	33	13.5	4
14	6	K	33	30.5758	10.1859	46	33.0	6
15	6	T	30	16.7000	13.4886	58	12.5	3

OBS	YEAR	SEX	N	MEAN	SD	MAX	MEDIAN	MIN
1	3	B	67	3.1194	4.2159	31	2.0	0
2	3	G	84	3.4643	4.6295	37	2.0	0
3	4	B	78	7.7949	5.3872	27	7.0	1
4	4	G	70	7.1714	4.6872	19	6.0	0

5	6	B	79	21.0127	12.4061	58	20.0	3
6	6	G	74	22.2838	11.9583	45	20.5	4

OBS	YEAR	N	MEAN	SD	MAX	MEDIAN	MIN
1	3	151	3.3113	4.4395	37	2	0
2	4	148	7.5000	5.0609	27	7	0
3	6	153	21.6275	12.1682	58	20	3

### Descriptive statistics for score on items 1-20 in Nyanja

OBS	YEAR	SCHOOL	SEX	N	MEAN	SD	MAX	MEDIAN	MIN
1	3	C	B	17	2.4706	2.00367	6	2.0	0
2	3	C	G	22	2.1364	2.33596	10	1.5	0
3	3	D	B	6	1.3333	1.96638	5	0.5	0
4	3	D	G	4	0.7500	0.95743	2	0.5	0
5	3	J	B	13	4.0769	4.49929	17	3.0	0
6	3	J	G	22	3.4545	3.80134	19	3.0	0
7	3	K	B	17	1.4706	1.23073	4	2.0	0
8	3	K	G	17	1.3294	1.12459	4	1.0	0
9	3	T	B	14	2.2857	1.93862	5	1.0	0
10	3	T	G	19	1.9474	2.32077	10	1.0	0
11	4	C	B	24	5.3833	4.03158	14	4.0	1
12	4	C	G	13	5.0000	4.20317	16	4.0	0
13	4	D	B	8	10.3000	6.36957	17	11.5	0
14	4	D	G	10	6.3000	5.77446	17	4.0	1
15	4	J	B	17	5.7647	3.84918	14	5.0	0
16	4	J	G	17	5.1176	3.25734	11	4.0	1
17	4	K	B	17	3.7059	3.34971	12	3.0	0
18	4	K	G	8	1.6250	1.92261	5	1.0	0
19	4	T	B	12	2.3000	1.31426	4	3.0	0
20	4	T	G	22	3.5000	1.73891	7	3.5	0
21	6	C	B	12	7.5000	3.87298	14	6.5	2

22	6	C	G	12	11.3000	5.38516	17	12.0	1
23	6	D	B	16	11.7500	5.32291	19	13.5	2
24	6	D	G	20	11.0000	4.12948	17	11.0	1
25	6	J	B	15	8.3333	6.25262	17	7.0	1
26	6	J	G	15	8.2667	5.47027	16	8.0	0
27	6	K	B	18	14.2778	2.53923	18	14.0	9
28	6	K	G	15	12.4000	5.31574	17	15.0	2
29	6	T	B	18	9.1111	5.93978	20	8.5	1
30	6	T	G	12	8.1667	5.90583	19	7.5	2

OBS	YEAR	SCHOOL	N	MEAN	SD	MAX	MEDIAN	MIN
1	3	C	39	2.2821	2.17581	10	2.0	0
2	3	D	10	1.1000	1.59513	5	0.5	0
3	3	J	35	3.6857	4.02033	19	3.0	0
4	3	K	34	1.5000	1.16124	4	1.0	0
5	3	T	33	2.0909	2.14131	10	1.0	0
6	4	C	37	5.3784	4.04387	16	4.0	0
7	4	D	18	8.1667	6.24264	17	6.5	0
8	4	J	34	5.4412	3.52645	14	4.0	0
9	4	K	25	3.0400	3.08869	12	2.0	0
10	4	T	34	3.1471	1.65387	7	3.0	0
11	6	C	24	9.5000	5.02169	17	10.5	1
12	6	D	36	11.3333	4.64143	19	12.5	1
13	6	J	30	8.3000	5.77241	17	7.5	0
14	6	K	33	13.4242	4.08527	18	15.0	2
15	6	T	30	8.7333	5.84237	20	8.0	1

OBS	YEAR	SEX	N	MEAN	SD	MAX	MEDIAN	MIN
1	3	B	67	2.3881	2.63402	17	2	0
2	3	G	84	2.2500	2.66560	19	2	0
3	4	B	78	5.2436	4.34304	17	4	0
4	4	G	70	4.3571	3.61172	17	4	0

5	6	B	79	10.4304	5.47883	20	11	1
6	6	G	74	10.3514	5.30038	19	11	0

OBS	YEAR	N	MEAN	SD	MAX	MEDIAN	MIN
1	3	151	2.3113	2.64370	19	2	0
2	4	148	4.8243	4.02495	17	4	0
3	6	153	10.3922	5.37567	20	11	0

### Descriptive statistics for score on items 21-40 in Nyanja

OBS	YEAR	SCHOOL	SEX	N	MEAN	SD	MAX	MEDIAN	MIN
1	3	C	B	17	1.0588	1.59963	5	0.0	0
2	3	C	G	22	0.8182	0.90692	3	1.0	0
3	3	D	B	6	0.0000	0.00000	0	0.0	0
4	3	D	G	4	0.0000	0.00000	0	0.0	0
5	3	J	B	13	1.2308	3.32049	12	0.0	0
6	3	J	G	22	1.9545	2.98372	14	1.0	0
7	3	K	B	17	0.0000	0.00000	0	0.0	0
8	3	K	G	17	0.0000	0.00000	0	0.0	0
9	3	T	B	14	0.0000	0.00000	0	0.0	0
10	3	T	G	19	0.0000	0.00000	0	0.0	0
11	4	C	B	24	2.0000	1.47442	5	2.0	0
12	4	C	G	13	1.6923	1.65250	6	1.0	0
13	4	D	B	8	3.1250	4.01559	12	1.5	0
14	4	D	G	10	0.4000	0.84327	2	0.0	0
15	4	J	B	17	2.8824	1.93269	6	3.0	0
16	4	J	G	17	2.6471	1.86886	8	2.0	0
17	4	K	B	17	0.0588	0.24254	1	0.0	0
18	4	K	G	8	0.1250	0.35355	1	0.0	0
19	4	T	B	12	1.0000	1.20605	3	0.5	0
20	4	T	G	22	1.3636	1.25529	3	1.0	0
21	6	C	B	12	3.7500	3.51943	9	3.0	0

22	6	C	G	12	7.5833	5.03548	15	6.5	1
23	6	D	B	16	8.8750	4.63141	16	9.0	2
24	6	D	G	20	9.2500	4.32709	16	10.0	2
25	6	J	B	15	3.8000	3.44757	13	4.0	0
26	6	J	G	15	4.9333	3.61478	12	4.0	0
27	6	K	B	18	11.6667	4.00000	17	10.5	3
28	6	K	G	15	9.5333	5.66779	19	11.0	1
29	6	T	B	18	4.8889	5.96942	20	3.0	0
30	6	T	G	12	5.5833	5.05350	19	4.0	0

OBS	YEAR	SCHOOL	N	MEAN	SD	MAX	MEDIAN	MIN
1	3	C	39	0.9231	1.24361	5	0.0	0
2	3	D	10	0.0000	0.00000	0	0.0	0
3	3	J	35	1.6857	3.08480	14	1.0	0
4	3	K	34	0.0000	0.00000	0	0.0	0
5	3	T	33	0.0000	0.00000	0	0.0	0
6	4	C	37	1.8919	1.52359	6	2.0	0
7	4	D	18	1.6111	2.99291	12	0.0	0
8	4	J	34	2.7647	1.87582	8	3.0	0
9	4	K	25	0.0800	0.27689	1	0.0	0
10	4	T	34	1.2353	1.23236	3	1.0	0
11	6	C	24	5.6667	4.67804	15	5.0	0
12	6	D	36	9.0833	4.40373	16	9.5	2
13	6	J	30	4.3667	3.51826	13	4.0	0
14	6	K	33	10.6970	4.87009	19	11.0	1
15	6	T	30	5.1667	5.54034	20	3.0	0

OBS	YEAR	SEX	N	MEAN	SD	MAX	MEDIAN	MIN
1	3	B	67	0.50746	1.71776	12	0	0
2	3	G	84	0.72619	1.76547	14	0	0
3	4	B	78	1.73077	2.08067	12	1	0
4	4	G	70	1.45714	1.61232	8	1	0



5	6	B	79	6.86076	5.44138	20	5	0
6	6	G	74	7.56757	4.98513	19	7	0

OBS	YEAR	N	MEAN	SD	MAX	MEDIAN	MIN
1	3	151	0.62914	1.74209	14	0	0
2	4	148	1.60135	1.87261	12	1	0
3	6	153	7.20261	5.22061	20	6	0

### Descriptive statistics for score on items 41-60 in Nyanja

OBS	YEAR	SCHOOL	SEX	N	MEAN	SD	MAX	MEDIAN	MIN
1	3	C	B	17	0.70588	0.98518	3	0.0	0
2	3	C	G	22	0.63636	0.95346	3	0.0	0
3	3	D	B	6	0.00000	0.00000	0	0.0	0
4	3	D	G	4	0.00000	0.00000	0	0.0	0
5	3	J	B	13	0.23077	0.59914	2	0.0	0
6	3	J	G	22	1.22727	1.37778	4	1.0	0
7	3	K	B	17	0.00000	0.00000	0	0.0	0
8	3	K	G	17	0.00000	0.00000	0	0.0	0
9	3	T	B	14	0.00000	0.00000	0	0.0	0
10	3	T	G	19	0.00000	0.00000	0	0.0	0
11	4	C	B	24	0.91667	1.34864	4	0.0	0
12	4	C	G	13	1.76923	2.16617	6	1.0	0
13	4	D	B	8	0.00000	0.00000	0	0.0	0
14	4	D	G	10	0.00000	0.00000	0	0.0	0
15	4	J	B	17	1.94118	1.29762	4	2.0	0
16	4	J	G	17	2.58824	2.739.95	8	2.0	0
17	4	K	B	17	0.05882	0.24254	1	0.0	0
18	4	K	G	8	0.00000	0.00000	0	0.0	0
19	4	T	B	12	0.66667	1.37069	4	0.0	0
20	4	T	G	22	1.27273	1.60896	5	0.5	0
21	6	C	B	12	3.91667	3.75278	12	4.0	0

22	6	C	G	12	5.83333	3.80988	14	6.0	0
23	6	D	B	16	1.62500	2.47319	9	0.0	0
24	6	D	G	20	4.45000	4.26090	14	4.0	0
25	6	J	B	15	2.86667	2.41622	9	3.0	0
26	6	J	G	15	3.00000	2.00000	7	3.0	0
27	6	K	B	18	6.77778	3.15400	11	7.0	0
28	6	K	G	15	6.06667	3.41147	11	6.0	0
29	6	T	B	18	3.11111	4.80060	19	1.5	0
30	6	T	G	12	2.33333	2.01509	6	2.5	0

OBS	YEAR	SCHOOL	N	MEAN	SD	MAX	MEDIAN	MIN
1	3	C	39	0.66667	0.95513	3	0.0	0
2	3	D	10	0.00000	0.00000	0	0.0	0
3	3	J	35	0.85714	1.24009	4	0.0	0
4	3	K	34	0.00000	0.00000	0	0.0	0
5	3	T	33	0.00000	0.00000	0	0.0	0
6	4	C	37	1.21622	1.70188	6	0.0	0
7	4	D	18	0.00000	0.00000	0	0.0	0
8	4	J	34	2.26471	2.13639	8	2.0	0
9	4	K	25	0.04000	0.20000	1	0.0	0
10	4	T	34	1.05882	1.53625	5	0.0	0
11	6	C	24	4.87500	3.82569	14	4.5	0
12	6	D	36	3.19444	3.80841	14	2.0	0
13	6	J	30	2.93333	2.18037	9	3.0	0
14	6	K	33	6.45455	3.24125	11	7.0	0
15	6	T	30	2.80000	3.89872	19	2.0	0

OBS	YEAR	SEX	N	MEAN	SD	MAX	MEDIAN	MIN
1	3	B	67	0.22388	0.62331	3	0	0
2	3	G	84	0.48810	0.98781	4	0	0
3	4	B	78	0.82051	1.28673	4	0	0
4	4	G	70	1.35714	2.05741	8	0	0

5	6	B	79	3.72152	3.83284	19	3	0
6	6	G	74	4.36486	3.54066	14	4	0

<b>OBS</b>	<b>YEAR</b>	<b>N</b>	<b>MEAN</b>	<b>SD</b>	<b>MAX</b>	<b>MEDIAN</b>	<b>MIN</b>
1	3	151	0.37086	0.85335	4	0	0
2	4	148	1.07432	1.71068	8	0	0
3	6	153	4.03268	3.69640	19	3	0

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# Appendix K - Significance testing of the results of the reading tests

(English (Word Find), and Nyanja V.01)

## Introduction

The results (see p. 49) estimate the effects on test score of a number of different factors:- urban or rural school (URBAN), sex of child (SEX) grade (YEAR) and whether Nyanja was the home language of the child (HOMEL). When analysing test scores in English the last of these variables (HOMEL) is inappropriate and is not included in the analysis.

## Variable codes

Variable YEAR	Categories 3	Codes
YEAR	3	346
SCHOOL	5	C D J K T
SEX	2	B (boy) G (girl)
URBAN	2	R (rural) U (urban)
HOMEL	2	H (home language) X (other)

The data collected for this study has a hierarchical structure, children within classes within schools, and this complicates the form of the analysis required. Each level in the hierarchy has its own degree of random variation which has to be taken into account e.g. a class may have a particularly good (or bad) teacher with the result that the scores of all the children in the class are better (or worse) than expected. This extra variation is over and above the usual child-to-child variation in scores. When comparing grades, i.e. years 3, 4 and 6, the extra variation should be estimated and taken into account, otherwise the differences between the years will be found to be more significant than they really should be. Similarly at the school level, when comparing urban and rural schools the variation between schools needs to be used. The procedure MIXED in the computer package SAS is designed to deal with this type of data and has been used to

produce the analyses.

Three sets of results are provided for each analysis:-

1) estimates of variance parameters - these are the estimated values for the random sources of variation described above, child, class and school.

2) estimates of fixed effects - these are the estimates of the effects of the factors listed above (year, sex, urban/rural). Since the analysis is concerned with differences due to the different categories of the factors then one category is taken as the baseline (and attributed 0.0000) and the difference between this and all other categories is presented (eg year 6 is attributed 0.0000 compared with year 4 which gets -16.8213, ie nearly 17 points less than Year 6). In addition to the estimated effects an overall test of whether the factor has a significant effect is given.

3) least squares means - these are adjusted mean scores for each of the factors examined. Adjustment is made for all other factors in the analysis. Thus the least squares means for urban and rural schools are the scores to be expected in such schools if each class had the same number of pupils and equal numbers of boys and girls.

## **Significance Tests: Findings**

### 1. Sex differences

Overall there is little evidence of differing achievement by the two sexes. There were no statistically significant sex differences.

### 2. Urban/rural differences

The estimated differences in score between urban and rural schools is in most cases large (7.2 points for English) but none of these estimates is significant. The problem is the relatively small number of schools involved in this study. It is possible that real differences between urban and rural schools do exist but a larger sample of schools (not pupils) would be needed to confirm this.

### 3. Year differences

Estimated differences between years 3, 4 and 6 are large and strongly significant, indicating a progressive improvement in ability with age for

English and Nyanja.

#### 4. Language differences

Nyanja home language pupils doing the Nyanja test do not seem to have a significant advantage. However, the difference is in the expected direction (ie Nyanja home language speakers perform slightly better overall in the Nyanja test than do non-Nyanja home language children).

#### English test scores.

##### Variance Parameter Estimates

Parameter	Ratio	Estimate	Std Error	Z	P
SCHOOL	0.5605	42.3909	37.0318	1.14	0.2523
CLASS	0.0857	6.4888	4.5651	1.42	0.1552
Residual	1.0000	75.6285	5.1214	14.77	0.0000

##### Estimates for Fixed Effects

Parameter	Estimate	Std Error	DF	T Value	P
INTERCEPT	32.8958	4.9055	436	6.71	0.0000
YEAR 3	-23.4253	1.9230	436	-12.18	0.0000
YEAR 4	-16.8213	1.9079	436	-8.82	0.0000
YEAR 6	0.0000				
SEX B	-1.2056	0.8300	436	-1.45	0.1471
SEX G	0.0000				
URBAN R	-7.2126	6.1526	436	-1.17	0.2417
URBAN U	0.0000				

##### Tests of Fixed Effects

Source	NDF	DDF	Type III F	Pr>F
YEAR	2	8	79.39	0.0000
SEX	1	436	2.11	0.1471

URBAN	1	3	1.37	0.3257
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### Least Squares Means

Level	LSMEAN	Std Error	DF
YEAR 3	5.2613	3.2759	436
YEAR 4	11.8654	3.2685	436
YEAR 6	28.6867	3.2644	436
SEX B	14.6683	3.1048	436
SEX G	15.8740	3.1031	436
URBAN R	11.6648	3.8970	436
URBAN U	18.8774	4.7608	436

### Nyanja test scores

#### Variance Parameter Estimates

Cov Parm	Ratio	Estimate	Std Error	Z Value	Pr >  Z
SCHOOL	0.00000000	0.00000000			
YEAR* SCHOOL	0.29499321	15.58507453	7.42402862	2.10	0.0358
Residual	1.00000000	52.83197777	3.58155772	14.75	0.0000

#### Estimates for Fixed Effects

Parameter	Estimate	Std Error	DF	T Value	P
INTERCEPT	20.0530	2.3507	435	8.53	0.0000
YEAR 3	-18.2916	2.6489	435	-6.91	0.0000
YEAR 4	-13.8498	2.6392	435	-5.25	0.0000
YEAR 6	0.0000				
SEX B	-0.1826	0.6959	435	-0.26	0.7931
SEX G	0.0000				
URBAN R	1.7541	2.2784	435	0.77	0.4418
URBAN U	0.0000				

HOMEL H	0.4222	1.0732	435	0.39	0.6942
HOMEL X	0.0000				

### Tests of Fixed Effects

Source	NDF	DDF	Type III F	Pr>F
YEAR	2	8	26.04	0.0003
SEX	1	435	0.07	0.7931
URBAN	1	3	0.59	0.4974
HOMEL	1	435	0.15	0.6942

### Least Squares Means

Level	LSMEAN	Std Error	DF
YEAR 3	2.75830942	1.90838830	435
YEAR 4	7.20006093	1.89271955	435
YEAR 6	21.04991977	1.88954775	435
SEX B	10.24478534	1.18049684	435
SEX G	10.42740809	1.17133003	435
URBAN R	11.21316059	1.49854693	435
URBAN U	9.45903283	1.69511988	435
HOMEL H	10.54723965	1.14218611	435
HOMEL X	10.12495377	1.33969706	435

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# Appendix L - Reading aloud: assessment results for all schools

## Key to abbreviations:

B: boy

G: girl

Pass 1: Passage 1;

Ques 1: Question 1

T: test terminated at this point

na: question not asked

P: passage passed over, as it was judged well within pupil's capacity

## Assessment of Overall Reading of Passages: key to numbers:

2= comprehensible; has read aloud adequately

1= incomprehensible in places; could not read aloud everything

0= experienced severe problems

## Assessment of Answers to Comprehension Questions: key to numbers:

2= clear evidence of comprehension

1= partial evidence of comprehension

0= no evidence of comprehension

**It should be recalled that the marking of this test is impressionistic, rather than strictly objective.**

**Note on "na": questions were not asked if the reader had already provided the response in answer to a previous question, or if the question was judged to be well within the pupil's capacity. In the latter case it was a practical time-saving strategy.**

**School C (rural)**

	Grade 3		Grade 4		Grade 6	
	B	G	B	G	B	G
<b>Pass 1</b>	1	1	1	2	2	2
<b>Ques 1</b>	2	2	0	1	2	2
<b>Ques 2</b>	0	2	0	1	2	2
<b>Pass 2</b>	2	1	1	2	2	2
<b>Ques 1</b>	2	2	2	2	2	2
<b>Ques 2</b>	2	0	0	1	2	2
<b>Ques 3</b>	2	2	2	2	2	2
			T			
<b>Pass 3</b>	2	1		2	2	2
<b>Ques 1</b>	2	2		0	2	2
<b>Ques 2</b>	0	0		0	2	0
<b>Ques 3</b>	1	0		T	1	2
	T	T				
<b>Pass 4</b>					2	2
<b>Ques 1</b>					2	1
<b>Ques 2</b>					2	2
<b>Ques 3</b>					2	2
<b>Ques 4</b>					2	0
<b>Pass 5</b>					2	1
<b>Ques 1</b>					na	na
<b>Ques 2</b>					na	na
<b>Ques 3</b>					2	0
<b>Ques 4</b>					na	na
<b>Ques 5</b>					2	2
<b>Ques 6</b>					2	na

School D (rural)

	Grade 3	Grade 4	Grade 6
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	4B	3B	G	G	5B	1B	8G	5G	8B	3B	3G	12G
<b>Pass 1</b>	1	1	1	2	2	2	2	2	2	2	2	2
<b>Ques 1</b>	1	1	1	2	2	2	2	2	2	2	2	2
<b>Ques 2</b>	0	0	0	2	2	2	0	0	2	2	2	2
	T	T	T									
<b>Pass 2</b>				1	2	2	2	2	2	2	2	2
<b>Ques 1</b>				2	2	2	2	1	2	2	2	2
<b>Ques 2</b>				2	1	2	2	1	1	2	2	2
<b>Ques 3</b>				2	2	2	2	2	2	2	2	2
								T				
<b>Pass 3</b>				1	2	2	1		2	2	2	2
<b>Ques 1</b>				2	2	2	0		2	2	2	2
<b>Ques 2</b>				2	0	2	2		2	2	2	2
<b>Ques 3</b>				1	0	0	0		1	1	0	0
				T	T	T	T					
<b>Pass 4</b>									2	2	2	2
<b>Ques 1</b>									2	2	2	2
<b>Ques 2</b>									2	2	2	2
<b>Ques 3</b>									2	2	2	2
<b>Ques 4</b>									0	1	2	2
<b>Pass 5</b>									2	2	2	2
<b>Ques 1</b>									na	na	2	2
<b>Ques 2</b>									na	na	na	na
<b>Ques 3</b>									2	2	0	2
<b>Ques 4</b>									na	na	na	2
<b>Ques 5</b>									2	0	0	2
<b>Ques 6</b>									2	0	T	2

School I (rural)

	Grade 3		Grade 4		Grade 6	
	B	G	B	G	B	G

<b>Pass 1</b>	Pupils not available		<b>1</b>	<b>1</b>	<b>2</b>	<b>2</b>
<b>Ques 1</b>			<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>
<b>Ques 2</b>			<b>2</b>	<b>0</b>	<b>2</b>	<b>2</b>
<b>Pass 2</b>			<b>1</b>	<b>0</b>	<b>2</b>	<b>2</b>
<b>Ques 1</b>			<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>
<b>Ques 2</b>			<b>1</b>	<b>0</b>	<b>2</b>	<b>2</b>
<b>Ques 3</b>			<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>
<b>Pass 3</b>			<b>2</b>	<b>0</b>	<b>2</b>	<b>2</b>
<b>Ques 1</b>			<b>2</b>	<b>T</b>	<b>2</b>	<b>2</b>
<b>Ques 2</b>			<b>1</b>		<b>2</b>	<b>1</b>
<b>Ques 3</b>			<b>0</b>		<b>2</b>	<b>1</b>
<b>Pass 4</b>			<b>1</b>		<b>2</b>	<b>2</b>
<b>Ques 1</b>			<b>1</b>		<b>2</b>	<b>2</b>
<b>Ques 2</b>			<b>2</b>		<b>2</b>	<b>2</b>
<b>Ques 3</b>			<b>1</b>		<b>2</b>	<b>2</b>
<b>Ques 4</b>			<b>0</b>		<b>2</b>	<b>2</b>
			<b>T</b>			
<b>Pass 5</b>					<b>2</b>	<b>2</b>
<b>Ques 1</b>					<b>2</b>	<b>2</b>
<b>Ques 2</b>					<b>na</b>	<b>na</b>
<b>Ques 3</b>					<b>2</b>	<b>2</b>
<b>Ques 4</b>					<b>na</b>	<b>na</b>
<b>Ques 5</b>					<b>0</b>	<b>2</b>
<b>Ques 6</b>					<b>2</b>	<b>2</b>

**School K (rural)**

	<b>Grade 3</b>		<b>Grade 4</b>		<b>Grade 6</b>	
	<b>B</b>	<b>G</b>	<b>B</b>	<b>G</b>	<b>B</b>	<b>G</b>
<b>Pass 1</b>	(Pupils not available)				<b>2</b>	<b>2</b>
<b>Ques 1</b>					<b>2</b>	<b>2</b>
<b>Ques 2</b>					<b>2</b>	<b>2</b>



<b>Pass 3</b>	2	2	2	2	2	2	2	2	2	2	2	2
<b>Ques 1</b>	2	2	2	2	na	na	na	na	na	na	na	na
<b>Ques 2</b>	2	2	2	2	2	2	na	2	2	na	2	2
<b>Ques 3</b>	2	2	2	2	2	2	2	2	2	2	2	2
<b>Pass 4</b>	2	2	2	1	2	2	P	2	2	2	2	2
<b>Ques 1</b>	2	2	2	2	2	2	"	2	2	2	2	2
<b>Ques 2</b>	2	2	2	2	2	P	"	na	2	2	na	na
<b>Ques 3</b>	2	2	2	2	2	2	"	2	2	2	2	2
<b>Ques 4</b>	2	2	2	0	2	2	"	2	2	2	2	2
				T								
<b>Pass 5</b>	2	2	2		1	1	2	2	2	2	1	2
<b>Ques 1</b>	2	2	2		2	2	2	2	2	2	2	2
<b>Ques 2</b>	na	na	na		na	na	na	na	na	na	na	na
<b>Ques 3</b>	2	2	2		2	2	2	2	2	0	2	2
<b>Ques 4</b>	na	na	na		na	na	na	na	na	na	na	na
<b>Ques 5</b>	2	2	2		2	2	2	2	2	2	1	2
<b>Ques 6</b>	2	2	2		2	2	2	0	2	2	2	2

**School T (urban)**

	<b>Grade 3</b>				<b>Grade 4</b>				<b>Grade 6</b>			
	<b>B</b>	<b>B</b>	<b>G</b>	<b>G</b>	<b>B</b>	<b>B</b>	<b>G</b>	<b>G</b>	<b>B</b>	<b>B</b>	<b>G</b>	<b>G</b>
<b>Pass 1</b>	(pupils not available)				2	1	1	1	2	P	2	2
<b>Ques 1</b>					2	2	2	2	2	"	2	2
<b>Ques 2</b>					2	2	2	2	2	"	na	2
<b>Pass 2</b>					2	0	0	2	2	2	2	2
<b>Ques 1</b>					2	2	2	2	2	2	2	2
<b>Ques 2</b>					2	2	0	2	2	2	2	2
<b>Ques 3</b>					2	0	T	2	2	2	2	2
<b>Pass 3</b>					2	0	1	2	2	2		2
						T						
<b>Ques 1</b>					2			0	2	2	2	2

<b>Ques 2</b>		2			1	2	2	2	2
<b>Ques 3</b>		0			1	2	2	2	2
<b>Pass 4</b>		2			1	2	2	2	1
<b>Ques 1</b>		2			2	2	2	2	2
<b>Ques 2</b>		2			2	2	2	2	0
<b>Ques 3</b>		2			0	2	2	2	2
<b>Ques 4</b>		1			0	2	2	1	2
					T				
<b>Pass 5</b>		2				2	2	1	1
<b>Ques 1</b>		0				2	2	2	2
<b>Ques 2</b>		na				na	na	na	na
<b>Ques 3</b>		1				2	2	2	2
<b>Ques 4</b>		na				na	na	na	na
<b>Ques 5</b>		2				2	2	2	2
<b>Ques 6</b>		0				2	2	2	2

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# Appendix M - Extract: Draft teaching syllabus, functional objectives, reading, grade 7

(mimeo, MOE. No further details, see 6.2.2)

By the end of Grade 7 (all pupils should be able to):

1. spell aloud, by naming letters, any words taught in Grades 1-7
2. recognise and read aloud with confidence and fluency all the sight words taught in Grades 1-6, and continue to build up their sight vocabulary by approximately 400 words to attain a sight vocabulary of about 1800 head words by the end of Grade 7
3. apply known phonic rules to words familiar from Spoken Language work but not previously seen in print, and in this way be able to read aloud such words without prior "look and say" presentation by the teacher (see the section on phonics for the phonic rules to be taught in Grade 7,) sight words and words decipherable by phonic analysis combining to give a reading vocabulary of 2500-3000 words by the end of Grade 7
4. read aloud with greater fluency and expression than in Grade 6, sentences or a passage where they can be expected either to recognise all the words because they have been pre-taught, or to sound them out by applying known phonic rules
5. read silently or (sic) a passage that they can be expected to read on their own (i.e. a passage which contains no words that they cannot either recognise or read by applying phonic analysis)
6. read silently for pleasure (i.e. in extensive reading) at a speed of



around 100 words per minute

7. demonstrate understanding of passages that they have either read aloud or which they have read on their own by answering the following:

factual questions of increasing difficulty compared with Grade 6

inferential questions suitable for this level

questions which relate what they have read to their own personal experiences

such questions may be

1) presented either orally or in print

2) answered with short answers or a full sentence as appropriate

3) of the Yes/No type (closed question), alternative questions (i.e. questions with "or"), or of the wh-type, (i.e. open questions which begin with questions words like: what, where, when, who why, how, etc...)

8. express opinions, based on their interpretation of what they have read, on character, plot and reasons for behaviour and make simple value judgements

9. read and demonstrate understanding of (by answering questions or carrying out instruction) the following types of reading materials:

narrative passages and stories in the Pupils' books or any other source of the same level including stories from the Good News Bible stories and articles from Orbit and Chonogolo Magazines and stories from any supplementary readers of the appropriate level formal letters such as letters to the newspapers, letters of complaint, letters making or asking for appointments etc

telegrams

newspaper articles of a suitable level, especially headlines and editorials, and feature articles

official forms (to be combined with writing exercises on how to fill in such forms) such as applications for things like a driving licence, a travel document, a hunter's licence, a charcoal burning licence etc...

National Registration Forms, insurance forms, an affidavit etc... instructions on the various pieces of equipment etc...they might come across for e.g. for wiring a plug, installing a piece of household equipment, e.g. a fridge or a T.V. and instructions for using and maintaining such equipment as they are likely to meet with in their places of work

material relating to matters of National Development and other concerns of public interest using authentic materials produced by the relevant Government Departments where possible

instructions on examination papers

advertisements in newspapers

official announcements

savings books, payslips, money orders, cheques, bills

10. read and interpret information set out in charts, simple maps, diagrams, plans and simple graphs of increased difficulty as compared with Grade 6

11. show that they can tell the difference between fact and opinion with reference to materials suitable to this level e.g. a simulated newspaper article which is biased.

12. show that they can predict from a heading, summary, picture, caption etc... the probable content of what they are about to read.

13. state their purpose in reading a particular passage e.g. for instructions, to gain specific information or to get the gist of a passage.

15. use alphabetical lists of words and use a purpose written section of a

dictionary (if a real dictionary is not available) to look up meaning of words

16. infer the meaning of words and structures not previously taught from the context in the reading passage and from their knowledge of word building.

17. read and demonstrate understanding of such reading materials as may be used in the teaching of other subjects at this level and authentic materials, e.g. the National Provident Fund Brochure which they may need in life outside school.

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