

## Exploring Inferencing Ability of ESL Readers<sup>1</sup>

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A study was conducted to investigate the performance on different types of inference questions of two groups of Zambian secondary school students, at Grade 10 and Grade 8. The texts used were 'familiar' (Zambian-focused) or 'unfamiliar' (British-focused). Results showed that Grade 10 students performed significantly better than Grade 8 students. Also, in most cases, students of both grades performed better on familiar texts than on unfamiliar texts. Causes and implications are discussed.

### INTRODUCTION

Inferencing is increasingly recognized as an essential component of the process of reading comprehension according to the psycholinguistic models of reading comprehension (e.g. schema-theoretic view of reading) which postulate that reading involves an interaction between textual information and prior knowledge of the reader. According to such models, inferences are important in integrating the text with the knowledge base (Spiro, 1980; Sanford et al., 1981). Some scholars (Trabasso, 1981; McIntosh, 1985; Farr et al., 1986; Johnston, 1983) posit that inferencing is central to comprehension since, as Johnston (1983) points out, it is involved in almost all reading tasks: interpretation of words with context-related meanings, identification of story context, filling in missing information etc. As a result, Johnston, (1983:6) further states that "the status of inference has shifted over the few years from a simple process, almost an optional extra, to a selection of fairly-well differentiated types of inferences upon which virtually all comprehension is predicted".

Writing about the assessment of reading comprehension, Johnston (1983) and Warren et al. (1979) contend that inferences are acts of comprehension and their measurement therefore is an alternative assessment of the understanding one has of a text. Oakhill et al (1988), too, believe that inference questions are more important for assessing reading comprehension. The instructional implication of all this is that reading teachers should spend more of their instructional time developing inferential comprehension. Allied to this is the implication that teachers should assess the inferential abilities of students from time to time in order to identify their relative strengths and weaknesses in this important area of reading comprehension. For the purpose of this article, 'inference' is defined as the cognitive or mental

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process a reader goes through to obtain the implicit meaning of a written text on the basis of two sources of information: the propositional content of the text (i.e. information explicitly stated) and prior knowledge of the reader as cued by test items. Alternatively, the term is taken to mean the end product of such a process (i.e. the reader's response to a test item)

## PURPOSE OF THE STUDY

Research investigating the inferential abilities of native English children has been done by among others Paris and Upton (1976), Omanson et al (1978) and Oakhill (1984). The purpose of the present study was to contribute to the study of the inferential ability of ESL readers. It investigated, at two school levels, the ability of Zambian secondary school students, learning English as a second language, to draw different types of inference using culturally familiar and culturally unfamiliar texts. Specifically, this involved (a) examining how the subjects' ability to draw different types of inference varied at the two school levels on both text types; (b) examining how the subjects' performance on familiar texts would compare with their performance on unfamiliar texts. The hypotheses of the study, based on these objectives, are stated below after the description of the section on methodology.

## METHOD

### Subjects

The study used 'Grade 8' (154) and 'Grade 10' (156) students as subjects randomly selected from four government-run secondary schools- two urban and two rural. At the time of data collection, the Grade 8 subjects were in their first year of secondary education, having completed seven full academic years of primary education in an English medium educational system. Their mean age was 15.03. The grade 10 subjects, on the other hand, were in their third year of secondary education, having completed nine full years of education (i.e. seven years primary and two years secondary). Their mean age was 16.2. To enter the eighth and tenth grades, students in Zambia have to pass stringent selection examinations at the end of the seventh and ninth grades.

It was decided to use students at these two school levels for the following reasons. The first was that assessing the inferential ability of students in their first year of secondary education and comparing it with that of students in their third year (i.e. the middle point of secondary education in Zambia), would yield the following vital information: it would shed light on the entry knowledge of first year students as far as inferencing is concerned and it would also show whether or not there were significant developmental differences in the performance of these two groups. The second reason was that knowing the inferential ability of students in their first year

might have important teaching implications not only at secondary school level but also at primary level as far as inferential comprehension is concerned.

### Materials

Two researcher-designed inference tests were used: a Zambian-based inference test and a British-based inference test. The Zambian test employed texts that were culturally valid in the Zambian context (i.e. texts that were considered culturally familiar to the Zambian students and therefore suitable material for use in Zambia reading classrooms). Similarly, the British test used texts which were culturally valid in the British context (i.e. texts which were considered culturally familiar to the British students and therefore suitable material for use in British reading classrooms)

It should be stated that although the two sets of texts were culturally different, they were not, strictly speaking, completely culture-specific; rather, they were on a cline, with the setting and to a large extent content towards the Zambian or African end of the cline in the case of the Zambian test and towards the British end in the case of the British test. It was, therefore, assumed that the subjects would have more prior or background knowledge necessary for the comprehension of texts in the Zambian test and less background knowledge for the comprehension of texts in the British test. (For samples of texts, see Appendix 1).

The inferential questions used were prepared according to a taxonomy of inferences devised for the purpose of the study. This taxonomy (see Chikalanga, 1991)<sup>2</sup> draws heavily on the ideas contained in the taxonomies by Warren et al. (1979), Pearson and Johnson (1978) and Nicholas et al. (1980). It deals with the following inference categories: pronominal inferences, logical informational inferences, logical explanatory inferences, elaborative informational inferences and elaborative explanatory inferences. Briefly, **pronominal** inferences involve resolution of referents or antecedents of pronouns such as 'he', 'they', 'it' etc. **Logical informational** inferences determine the people, things, time, place and general context of given events. They enable the reader to appreciate who is doing what, to whom, with what instrument under what circumstances at what time and place (Warren et al; 1979). They are, thus, made in response to the questions Who? What? Where? and When? **Logical explanatory** inferences determine motivations of characters, causes and consequences of events and actions stated in the text and the conditions which enable events and actions to occur. They are thus made in response to the questions Why? and How? These two types of inferences are both termed 'logical' because they are **logically** derived from the semantic content of the text. That is, they are based on information expressed in one or two propositions or paragraphs. In other words, these inferences can be described as 'propositional' or text-based inferences. **Elaborative informational** inferences are similar to logical

informational inferences except that they are based on information outside the text. They depend largely on the reader's schemata or prior knowledge – hence the term 'elaborative'. Similarly, **elaborative explanatory** inferences are similar to logical explanatory inferences except that they are based on information outside the text. In other words the two elaborative types of inferences can be described as 'pragmatic' or scriptural inferences. (For samples of questions used in categories, see Appendix 2).

The two tests comprised four sections (A-D) each with twenty questions per section giving a total of 80 items. Section 'A' dealt with pronominal inferences. In this study, only personal pronouns were considered. In constructing the questions that tested the subjects' ability to draw these inferences, two factors were taken into account: the distance between the pronoun being tested and its antecedent and the number of possible antecedents for the pronoun being tested. Every effort was, therefore, made to see that the pronouns chosen for testing were either divorced from their antecedents or referents by at least several phrases/clauses or were potentially ambiguous, that is, had at least two or more antecedents as possible candidates for their resolution. Another point that should be made clear to the reader about the pronominal inferences tested in this section is that they were text-based, since the antecedents of the pronouns tested did exist in the texts used. They were not pragmatically determined as the pronoun 'he' in the following example taken from Brown and Yule (1983:217):

"There is a car going up the road and **he** comes to a crossroads"

In order to resolve the referent or antecedent of **he** in this sentence, the reader has to infer that a car moving along a road must have a driver and that it is to this inferred driver that the **he** refers. There is no linguistic element in the above sentence that can be treated as the antecedent of **he**. This example illustrates what Halliday and Hasan (1976) term 'exophoric' reference as opposed to 'endophoric' reference whereby the referent of a pronominal is found within the text.

Section 'B' dealt with two inference categories: elaborative informational inferences and elaborative explanatory inferences. Ideally, these two categories should have been treated separately. Unfortunately, this could not be done because it was not possible, with the texts used, to generate the required number of questions (i.e. 20) per category. Hence, it was decided to deal with these two categories under one composite category simply referred to as 'elaborative inferences'. The third and fourth sections (i.e. 'C' and 'D') tested for 'logical informational inferences' and 'logical explanatory inferences' respectively.

It can be appreciated from this brief account of the inferences tested that the source of answers to questions under categories 'A', 'C' and 'D' was the 'text' whereas the source of the answers to questions under category 'B' was principally the reader's

or subject's 'knowledge base'. It may be argued that category 'B' questions were simply tests of 'knowledge' rather than 'reading comprehension'. If the 'schematic view' of reading comprehension adopted in this article (see introduction) is accepted, then textually relevant knowledge should be accepted as an integral part of reading comprehension. Any test, therefore, which excludes items requiring information **principally** from the testee's 'knowledge base' cannot be said to be measuring reading comprehension. What should be avoided, however, is the inclusion of items that can be answered without reading the passage. In this study, everything possible was done to avoid such items.

Both tests used open-ended wh-questions. This type of question was chosen in preference to the multiple-choice type commonly used in comprehension textbooks especially in Zambia for one major reason. It was thought that the open-ended questions would force the subjects to think things out for themselves, thereby making them come to terms directly with the texts themselves. As Nuttall (1982) points out, this method can minimize indications of the researcher's own view of the answers to questions as would have been the case had the multiple-choice format been used. This is also the view held by Carrell et al (1989) who state that open-ended questions more directly reflect a student's mental processing of textual information than do multiple-choice questions. Similarly, Alderson and Urquhart (1984:63) make the point that the multiple-choice format often tends to conceal differences of interpretation because in answering multiple-choice questions students are merely "directed down channels which present them with limited choices, none of which might have occurred to them in a free reading situation".

### Test Administration

The two tests described above were 'group' tests. Each test was therefore administered to all the subjects (grades 8 and 10) at the same time. For consistency, the administration was done by the researcher on two separate days following clearly laid out instructions. The Zambian test was administered on the first day followed by the British test on the second day. This order was followed in order to let the subjects start with something that they were familiar with in the hope that they would be spurred to report the following day for a similar test but using texts that would be unfamiliar to them. Before the British test was administered, the invigilator explained a set of words that were considered new to the subjects and crucial to the comprehension of the test passages.

### HYPOTHESES

Having described the materials used, the research hypotheses of the study can now be stated.

**Research Hypothesis 1**

There will be developmental differences in performance between the lower (grade 8) and the upper (grade 10) subjects. That is, the upper subjects will perform significantly better than the lower subjects on both the Zambian test as a whole and in each of the inference categories (A-D) and on the British test as a whole and in each of the inference categories (A-D).

**Null Hypothesis Tested**

There is no statistically significant difference in performance between the upper and lower subjects on both tests as **wholes** and in each of the inference categories (A-D).

**Research Hypothesis 2**

The performance of both upper and lower subjects will be significantly better on the Zambian-based test than on the British-based test.

**Null Hypothesis Tested**

There is no statistically significant difference in performance on the two tests in respect of both groups of subjects considered separately.

**RESULTS**

**Hypothesis 1**

The mean scores and standard deviations for Grade 10 and Grade 8 subjects on the Zambian and British tests are displayed in Tables 'A' and 'B' respectively.

Category	Grade 10 (n=156)		Grade 8 (n=154)		$\bar{d}$
	$\bar{X}$	S.D.	$\bar{X}$	S.D.	
A	12.35	3.40	5.31	4.34	7.04*
B	11.28	2.94	6.86	3.46	4.42*
C	12.33	2.76	7.72	3.23	4.61*
D	9.42	3.10	4.64	2.77	4.78*
<b>OVERALL</b>	<b>45.38</b>	<b>9.32</b>	<b>24.53</b>	<b>11.10</b>	<b>20.85*</b>

\* p<.0001

Table A: Mean Scores and Standard Deviations for Grades 10 and 8 on Zambian – Test per Inference Category.

Category	Grade 10 (n=156)		Grade 8 (n=154)		$\bar{d}$
	$\bar{X}$	S.D.	$\bar{X}$	S.D.	
A	12.81	2.89	6.76	4.42	6.06*
B	6.35	3.03	2.79	2.50	3.56*
C	10.64	3.37	5.77	2.75	4.87*
D	7.98	2.66	3.35	2.26	4.63*
<b>OVERALL</b>	<b>37.78</b>	<b>9.68</b>	<b>18.67</b>	<b>9.48</b>	<b>19.11*</b>

\* p<.0001

Table B: Mean Scores and Standard Deviations for Grades 10 and 8 on British Test per Inference category.

The results in both tables were subjected to a t-test for differences between means. This revealed that there were significant differences (p<.0001) between the two groups on both tests as **wholes** and in each of the inference types. The null hypothesis was therefore rejected and the first research hypothesis accepted.

**Hypothesis 2**

The mean scores and mean differences for the upper (Grade 10) and lower (Grade 8) subjects on the two tests are given below in Tables 'C' and 'D' respectively

Category	Zambian Test	British Test		T-Value
	$\bar{X}$	$\bar{X}$	$\bar{d}$	
A	12.35	12.81	-0.46	-1.94
B	11.28	6.35	4.93	15.86*
C	12.33	10.64	1.69	6.38*
D	9.42	7.98	1.44	5.59*
<b>OVERALL</b>	<b>45.38</b>	<b>37.78</b>	<b>7.60</b>	<b>13.41*</b>

\* p<.005

Table C: Mean scores and Mean Differences for Grade 10 (n=156) on the Zambian and British Tests per Inference Category.

Category	Zambian Test	British Test		T-Value
	$\bar{X}$	$\bar{X}$	$\bar{d}$	
A	5.31	6.75	-1.45	-5.59*
B	6.86	2.79	4.07	17.03*
C	7.72	5.77	1.95	8.59*
D	4.64	3.35	1.29	6.76*
<b>OVERALL</b>	<b>24.53</b>	<b>18.67</b>	<b>5.86</b>	<b>10.44*</b>

\*  $p < .005$

Table D: Mean Scores and Mean Differences for Grade 8 (n=154) on the Zambian and British Tests per Inference Category.

The t-test for correlated samples was performed to calculate the significance of the differences between the means for each group per inference category and obtained the t-values given in the two tables above. When these obtained t-values were checked against the critical values in a directional test, it was found that the performance of both groups was significantly better ( $p < .0005$ ) on the Zambian Test as a **whole** and in each of the inference categories except category 'A' where both groups performed better on the British Test (although not significantly better in the case of the upper subjects). On the whole, therefore, the t-test results were overwhelmingly in favour of the research hypothesis. The null hypothesis was, on this basis, rejected.

An inspection of the above results reveals two noteworthy results regarding the performance of the two groups. The first is that the performance of both groups was lowest on inference category 'B', British Test. The second is that similar patterns of inferencing emerged from the performance of both groups on the two tests. Generally, both groups found category 'A' the 'easiest' followed by category 'C' on both tests. As for the hardest category, both groups found category 'D' on the Zambian Test the 'hardest' followed by category 'B', whereas on the British Test both groups found category 'B', as already observed, the 'hardest' followed by category 'D'.

## DISCUSSION

The superior performance by Grade 10 subjects is not surprising for two reasons. Firstly, the ability to infer improves with age, as previous work has shown (Paris and Lindauer, 1976; Paris and Upton, 1976; Omanson et al., 1978). Secondly, the

upper subjects' knowledge of English in which inferencing had to be done, was better than that of the lower subjects because of their longer exposure to this language. By comparison, therefore, the upper subjects had two advantages over the lower subjects: age, which meant that they had richer relevant world knowledge essential to deal with elaborative inferences and better linguistic knowledge which enabled them to deal with propositional or text-based inferences better than the lower subjects.

Although the difference between these two groups is not surprising, the *magnitude* of the gap is. An inspection of the means for the two groups on both tests shows that the performance of the upper subjects is almost double that of the lower subjects on the tests as **wholes** and in **each** of the inference types. If, for example, we take the overall means for the two tests, we see that those of the upper subjects (45.38 on the Zambian test and 37.78 on the British test) are almost twice those of the younger subjects, which stand at 24.53 and 18.67 respectively. It is clear from these figures that the performance of the lower subjects (grade 8) was remarkably low given the fact that the two groups differed only by two years in age and in the number of years of exposure to English. It is therefore difficult to believe that such low scores can be explained purely in these two terms. It would, then, appear that we need to think of other possible explanations for this state of affairs.

Since the subjects in this study were not screened to establish their decoding skills, it is conceivable that the decoding skills of the lower subjects could have been generally deficient and this could have contributed to their surprisingly low performance. It is claimed (Oakhill et al., 1988) that if word recognition and semantic accessing are slow and laboured they might disrupt comprehension in that they may not allow attention to be focused on the higher level processes e.g. drawing inferences. This reasoning derives from the theory that human information processing capacity is limited. That is, active attention cannot be directed to many tasks at once. For a complex language skill such as reading, this means that some of the lower level (bottom-up) processes e.g. word recognition, should be automated to leave enough processing capacity for higher level (top-down) processes (Perfetti, 1985).

The possibility that the lower subjects' decoding skills would have been deficient can be appreciated against the background of Sharma's (1973) study which revealed that the decoding skills of Zambian children at grade 3 level were poorly developed.<sup>3</sup> The majority of the children who participated in the study were unable to read all the words tested, even those at the grade one level. So, it is possible that the Zambian primary children progress into higher grades with decoding problems although these may become less and less pronounced with practice.

The other possible explanation for the low test results for the lower subjects may be found in the English course used in the upper segment of the primary schools in Zambia. Although the skill of deducing more than actually appears in print (i.e. inferencing) is cited as one of the skills to be taught and practised, little attention is paid to it in the teachers' handbooks and consequently little is done about it, since experience has shown that primary teachers follow the handbooks to the letter. The skill that is given prominence, according to the author of the course, McAdam (1973:173) is the skill of reading for exact (literal or factual) meaning which he considers as vital:

"The skill of reading for exact meaning is practised by the provision in the handbooks of a large number of detailed questions on the reading matter. The teacher is told that he can use his own questions if he wishes or can add to them but questions were provided to cut down the preparation time of the teacher and to make sure that this vital area was not neglected".

It can be inferred from this statement that the skill of inferencing and other reading skills is not considered important and that is why little assistance is given to teachers in this regard. The neglect of this skill is aggravated by the restricted nature of the reading lessons themselves. These lessons are controlled in such a way that pupils are rarely given the opportunity to guess, for instance, the meanings of new words in the reading comprehension texts. The operative principle and the one that is insisted upon in the handbooks is that all new words should be taught before the pupils read the text(s) in which they are used. This is typical of the structuralist/behaviourist (audio-lingual) approach. The disadvantage of this procedure, as already stated, is that learners are not afforded the chance to infer the meanings of new words – a strategy that has not only proved useful with first language learners but also with second language learners as long as reasonably sufficient contextual clues are provided in the target texts (see Elley, 1979; Xiaolong Li, 1988). The study by Elley is particularly interesting because it has demonstrated that L2 primary children (grades 5 and 6) can, given the assistance of meaningful contexts, infer meanings of new words.

The discussion has so far centred around explaining the overwhelming difference in performance between the two groups. In the next two paragraphs, the discussion is on the result reported above that the performance of both groups was better on the Zambian-context related test as a whole and in each of the inference types except type 'A' than on the British-context related test.

The major point that should be noted at the outset is that this finding supports the theoretical notion that reading is a schema-based process. That is to say, during reading, prior knowledge provides the reader with the basis for comprehension such that the text is interpreted relative to the reader's knowledge-base. If this knowledge is restricted or rather if there is a mismatch between prior knowledge of

the reader and the subject-matter of the text being read, what Carrell (1983) has called 'content schemata', comprehension is impaired. This, then, explains why both groups performed better on the Zambian-context related test which employed texts for which, it is assumed, they had the relevant prior knowledge, than on the British-context related test for which they had insufficient prior knowledge.

The finding that the performance of both groups on the British test was lowest on inference category 'B' is not surprising and is easy to explain. Both groups faced a common problem, namely that they were deficient in culturally prior knowledge required to draw most inferences in this category. The interesting result, however, is that comprehension on the British test was not only impaired for category 'B' which involved pragmatic inferences, but also for the other inference categories that dealt with text-based inferences except, as already noted, category 'A'. This result cannot be attributed to the linguistic complexity of the texts used since, as reported in the section on methodology, words that were considered new and crucial to the comprehension of the texts, were explained just before the test was done. But this should not be taken to mean that lexis is the only linguistic factor that can influence a reader's comprehension of a text. There are of course other factors such as syntax but some research (e.g. Alderson and Richards, 1977 cited in Alderson et al., 1984, and Cooper, 1984) suggests that vocabulary problems are the most important contributors to text difficulty. If the linguistic level of the texts was not responsible for the impaired comprehension on the inference types that involved text-based inferences, it is not unreasonable to suggest that lack of prior knowledge might have also affected the subjects' ability to draw text-based inferences. This is plausible because lack of prior knowledge might have a negative effect on the reader, resulting from the realization that the content or subject-matter of the text before him does not conform with his prior knowledge or experience. Consequently, he may lose interest and enthusiasm in processing not only elaborative or pragmatic inferences but textual ones as well. Weber's (1980) and Entin's (1981) studies, reported in Baldwin et al. (1985), offer credence to the explanation being suggested here that impaired comprehension on text-based inferences might have been due to lack of prior knowledge as well. Both studies found that interest and prior knowledge were correlated and that the two factors had an additive effect on comprehension.

It must also be stated that the interest of the reader may wane not only because of foreign subject-matter but also because of foreign names of persons and places appearing in the text, which Chihara et al. (1989:144) claim may "carry with them some fairly subtle semantic and pragmatic information which maybe critical to the determination of certain facts which can make profound differences in ordinary experience, for example, whether a character is male or female, old or young, or what sort of events or relationships to expect in a given context". To the extent that the subjects' comprehension on the inference categories that involved text-based inferences was impaired despite the explanation of the new words, this result seems

to offer testimony, though indirectly, to Johnson's (1981) and Floyd and Carrell's (1987) finding that the cultural origin of a text has greater effect on reading comprehension than does linguistic complexity or simplicity.

Finally, it has been reported above that the performance of both groups on category 'A' on the British test was slightly better than on the Zambian test. The immediate explanation for this result is that it might have been due to 'order effect'. It will be recalled that the British test was done a day after the Zambian test had been done. It is therefore possible that the subjects benefited from the practice they had on the Zambian test and hence the observed improvement. But why were the other categories (C and D) which also dealt with text-based inferences not affected? Since it is clear from the results on the British test that the subjects' performance on category 'A' was the odd one out, it might well have been the case that this result was due to sheer chance and not to the order followed in administering the tests.

### CONCLUSIONS AND IMPLICATIONS

This study has shown that the inferential reading skills of Zambian children at grade 8 level (i.e. the first year of secondary education) are very low but appear to improve by grade 10 (i.e. after two years of secondary education). Possible explanations for the low inferential reading skills at this level have been suggested and discussed. The study has also demonstrated that ESL readers' comprehension is better with texts that deal with their own culture than with those that deal with less familiar culture thereby confirming and extending the conclusions drawn by those who have previously demonstrated this point (Steffensen et al., 1979; Aron, 1986; Johnson, 1981; Carrell, 1984). In this particular regard, the results of this study appear to suggest (interestingly) that lack of prior knowledge on a topic does not only affect ESL readers' ability to draw elaborative or pragmatic inferences but also their ability to deal with text-constrained inferences. The study has further shown, through the patterns of inferencing that emerged from the performance of the subjects, that 'pronominal' inferences (category A) appear to be the easiest, followed by 'logical informational' inferences (category C) while 'logical explanatory' inferences (category D) are the hardest followed by 'elaborative' inferences (category B) with familiar materials but with unfamiliar materials, elaborative inferences are the hardest.

From the evidence of this study, the following major implications may be drawn:

1. The Schema-theoretic view of the reading process should form the basis for comprehension instruction in ESL classrooms. This means, among other things, that ESL teachers should make sure that the materials they select for comprehension are appropriate to the 'cultural' or 'domain-related' schemata of the students. However, this should not be taken to mean that only texts from the students' own cultural background should be used. At advanced

levels, materials from different cultural backgrounds (including those which have been produced for native speakers) can be used in order to give the students vicarious experience. When such materials are used, it is important for teachers to provide the students with requisite background knowledge through either the 'lecture method' (see Stevens, 1982) or 'previews' of the target texts (see Graves et al., 1982).

2. Inferential comprehension should be introduced as early as possible at primary level e.g. in grade 4 in Zambia starting with 'pronominal' inferences which, according to the results of this study, appear to be the easiest of the inference types examined.

### SUGGESTIONS FOR FURTHER RESEARCH

1. Shohamy (1984) has demonstrated that different methods of assessing a given trait have differing effects on the trait being measured. The present study used wh-questions (i.e. open-ended questions). If a similar study were carried out, employing a different testing method, would the inferencing patterns reported in this study be different?
2. Nothing in this study was done to distinguish 'skilled' from 'unskilled readers'. Further research is therefore needed to include this distinction. Would the inferencing patterns of skilled and unskilled readers be the same or different?

<sup>1</sup> This article is based on part of my PhD thesis: "Inferencing in the Reading Process: A cross-cultural study", which I completed in 1991 at the University of Reading. This work compared, among other things, the inferencing ability of Zambian and British Secondary students. I wish to thank my supervisors Mr. D. Porter and Professor D.A. Wilkins.

<sup>2</sup> A version of the taxonomy can be found in *Reading in a Foreign Language*, 8, 2 (ed.).

<sup>3</sup> See also William's findings in this issue (ed.).

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## APPENDIX 1

### SAMPLES OF TEXTS USED

#### A. Zambian Context-Related Text

##### THUNDERBOLT

My name is Jojo Phiri. I lived in a village called Njoka. Father, mother, grandmother, two sisters, both eight, a young brother aged six and I, fourteen years old. Our village was spread below a hill, about fourteen miles west of Fort Jameson, the capital of Eastern Province of Northern Rhodesia. I have not known why and how we came to settle there. Our parents told us that we had immigrated from Lundazi District, on the border with Nyasaland.

Father was not the talking type. But when he did talk he was very fierce. We called him 'Thunderbolt'. When we made mistakes, he would beat us instantly. No questions or explanations were entertained. When we lost a goat or a cow during grazing, we went into hiding until it was found.

His judgement was the most puzzling thing of all. I had never seen such ruling in any court of justice at any time. If, for example, I stole anything from one of my sisters – Tangu or Nyuma, or from brother Tinto, the punishment would come both on me, the thief, and the owner. If I got ten strokes for stealing Tinto's cob of maize, Tinto would receive five strokes for displaying his property carelessly. I never understood his judgement nor did my sisters and brothers seem to do so. But it was good because it made us become more careful with whatever we

said or did, and the better our knowledge of the world became. We liked our father for one thing more. He was not often seen at home.

25 Our father smoked cigarettes quite different from those smoked by other people we knew. He made the stinking cigarette sticks himself. He rolled a greenish stuff in pieces cut out of newspapers – any newspaper he could find. Sometimes he used pieces of paper removed from cement bags. What seemed to matter to him was not the paper, but the greenish stuff.

30 I always got amused whenever I saw him sitting smoking on the verandah of his big hut that looked like a falling umbrella. One cigarette was enough to set him smiling and singing songs, the words of which we did not understand. When we asked him about his music, he said he was singing in Shona, a language he had learnt in Southern Rhodesia where he had laboured in a coal mine. His favourite tune always went this way:

'Nhaiwe nyanga yawe – taze kuona nyangaya . . .'

then the chorus would follow:

'Nyanga yachena . . . nyanga yachena . . .'

40 Whatever that meant none among us children knew. We wanted to know something about it but could not interpret it in our language. All he said was that the chorus meant, 'The horn has brightened'. What horn? And whose horn was it? Nobody knew. We were convinced that he did not know what he was singing about either.

45 We loved our father for another thing. He told us many strange and frightening stories about ghosts at Sinoa in Southern Rhodesia. He often entertained us after a drink. When we saw some happiness in his eyes, we knew those stories would come again. He would call us and say, "Listen ... hic ... me and this Elena, your mother . . . you see . . . hic . . . in those days swallowed by years . . . you Jojo, were eight months old. You can't remember Sinoa, a place of devils. Hic . . . your mother and I went to town one day to buy your clothes. We purchased them at 'sic-pence', I remember" Father always failed to pronounce

55 'sixpence'. He put 'ck' in place of 'X'. This made us laugh. "It was a long way off," he continued, "but we walked the whole day long. On our way back home, hic . . . the sun sunk when we were half way between town and home. It was dark, but we saw the path we used. We knew it well. Hic . . . there were many

- 60 trees on both sides of the path. Insects cried and flew about in the grass. Then, hic . . . we saw many stars in a tree close to the path. In all colours they were – green, blue, yellow, red, white and so on. Then we said hic ... today we shall die a death we have never died before. It was as if half the sky's
- 65 stars had come down on a tree. I can assure you, let your grandfather walk from his grave if I'm telling lies. Is it not so, Elena?" Father would look at mother, his face closer to mine. I hated the smell of alcohol. I felt as if I was sitting near a drum of beer.
- 70 "Yes, we were with you Jojo," mother quickly responded, flashing her bony hand under her chin.

## B. British Context-Related Text

### THE DARK CORNER

I spent every day of that week at Massey's farm. There was so much to be done that I had no time for anything else.

We packed the wool into waggons and sent it off to the sales.

"Next time you see that lot it'll be carpets," Bob Hewitt said.

- 5 Then the three-year ewes had to be herded into the big double-decker vans which were to take them to the market. It wouldn't have been so bad if the sheep had put up a fight. That way we could have driven them angrily and been glad to see them go, but instead they followed each other quietly up the ramp and stood in the vans with their heads down, packed so tight you
- 10 wondered how they breathed. Sheep don't know about fighting. Maybe they are better that way.
- "Next time you see that lot," Willie Massey said, "they'll be mutton in Charlie Dale's shop."
- 15 That made it worse. I could see their big eyes watching up through the rails in the sides of the vans.
- Bob Hewitt spat. "You sound like an old hen, young Willie, and with about as much sense. Most of them sheep'll go for breeding."
- Best of all I liked catching the lambs. There were lots of

- 20 them and they all had to be marked before they were taken back to the moors for the summer. Most of them thought it was a game they hadn't played before. Willie and I were catching them for the whole day and taking them to have their ears clipped. They didn't like that very much but they soon forgot it. Sooner than I'd have
- 25 forgotten having a couple of pieces punched out of the edges of my ears.

- That was on the Thursday, the best day of the week, and we worked late and I had supper in Massey's kitchen, sitting round the big meal table with the men, breathing the scented peat-smoke and talking about sheep. It was getting dark outside and after
- 30 supper I hung about waiting for Bob Hewitt but he had a lot to talk over with John Massey. Then Willie yawned and Mrs. Massey told him it was time for bed.

- John Massey gave me one of his nods. "Time you were off, lad. Tomorrow'll likely be a long day."

- 35 I left. When John Massey told you to go, you went.

- The long straight road to Widow Baxter's corner had never seemed longer. There wasn't much of the day's light left and the sky was dark enough to reflect the glow from the furnaces. I ran until I was near to the corner and then I stopped and panted for
- 40 a minute or two. I could see the old witch's cottage, a black cavern in the twilight, and opposite it on the other side of the lane, the old oak that folk said had been a big tree in the days when the highwaymen rode under it on their way to The Pit.
- I crept forward on tiptoe and I'd almost reached the cottage
- 45 when a part of the oak's trunk detached itself and glided towards me. I let out a yell.

- "What's the matter with you, lad?" a voice asked.

- It was a dried up voice that crackled like electricity on a summer night. It was Widow Baxter's voice. I could hear her, and now she was so close to me that I could smell the old smell that always went round with her.
- 50 "I've been waiting," she said. "I told you there was a thing I had to say to you."

- She'd been watching for me. She must have had cat's eyes to have seen me coming along the lane.
- 55 "What's the matter with you?" she asked. "What are you scared of, lad?"

"I'm not scared of anything," I said, in a voice that sounded like somebody else's.

60 She clicked her teeth. "From what I hear you're a good lad. Where you get it from I don't know. Not from your father, that's a fact. He was ever a bad one, even when he was a youngster. Folk say there's a lot of him in you, but I don't think so. There's good stuff in you. You must have got it from your mother. Martha Thorpe came of good stock. Why she ever wed that Johnny Reece I don't know. Come into the house for a minute, lad. I want to get a better look at you."

I felt something brush softly against my leg and I knew it was one of her cats; one of the cats that folk said had once been  
70 somebody who'd crossed the old witch.

"I've got to go home," I said, "I'm late."

Her face was in darkness but her eyes caught the glow from Grimthorpe's sky and shone red.

"You're a mighty big lad," she said. "You'll soon be too big for Johnny Reece. He'll be afraid of you soon because he was ever a coward. You may make him into something yet, lad." She knew my old man alright. He wasn't much good but he was better than a witch.

"He's O.K.," I said.

80 "You are a good lad," she said, and her voice was now as soft and warm as a summer breeze. "Come into the house with me. I've got a brew of nettle-beer you'll like."

She moved away slowly, drawing me after her. I didn't want to follow her. I was so scared that I was sweating although I was cold.

85 I'd reached her gate when somebody called out of the darkness. "Is that you, Butch, lad?"

Suddenly I could stop and back away from her.

"I'm here, Bob!" I shouted.

He came out of the night, leaning forward on his crook, and

90 he said, "Time you were home, my lad."

"I'm going," I said and never before had I been thankful to be going home.

## APPENDIX 2

### SAMPLES OF QUESTIONS USED

#### Questions on *Zambian Text: Thunderbolt*

##### Category A:

- What does it (line 20) refer to?
- What does it (line 31) refer to?
- What does it (line 56) refer to?

##### Category B:

- Which of the four children mentioned in the story took the cattle for grazing, do you think?
- Jojo's father was not seen at home often and his children liked this (line 23). Why, do you think?
- Jojo's parents saw many 'stars' in a tree on their way home from town. What did they think the stars were?
- What was the greenish stuff that Jojo's father smoked?
- Why, do you think, did Jojo's mother flash her hand under her chin?

##### Category C:

- In what direction was Fort Jameson from Njoka village?
- Who was the oldest child in Mr. Phiri's family?
- Who was the youngest child?
- Which children were of the same age?

##### Category D:

- Why did the children call their father Thunderbolt?
- 'It was dark, but we saw the path we used' (lines 58-59). Why were they able to see the path in the dark?
- Why did Mr. Phiri go to Southern Rhodesia?
- Mr. Phiri called Sinoa 'a place of devils'. Why?
- When his father was telling the story about Sinoa, Jojo could not remember this place, Why?

#### Questions on *British Text: The Dark Corner*

##### Category A:

- What does it (line 4) refer to?
- What does they (line 13) refer to?
- What does it (line 41) refer to?

**Category B:**

- Where was the wool they packed into wagons from, do you think?
- What was Charlie Dale, do you think?
- Why were lambs marked before they were taken to the moors?
- Why were the lambs taken to the moors in the season mentioned in the passage (line 21)?
- Why did the storyteller say, she (widow Baxter) must have had cat's eyes'?
- What is referred to as 'a part of the oak's trunk (line 45), do you think?

**Category C:**

- What was the storyteller's family or surname?
- What was the storyteller's first name?
- What was Widow Baxter?
- Who were the younger workers on the farm?
- Who was the storyteller's mother?

**Category D:**

- Why did John Massey give the storyteller a nod?
- Why did the storyteller try to wait for Bob Hewitt?
- Why was Thursday the best day of the week?
- Why did Bob Hewitt say, 'Most of them sheep will go for breeding'? (line 18).
- Why did the storyteller run to Baxter's corner?
- "I crept forward on tiptoe ..." (line 44). Why did the storyteller decide to walk in this way at this point?