



Reading and the orthography of isiZulu

Sandra Land

To cite this article: Sandra Land (2015) Reading and the orthography of isiZulu, South African Journal of African Languages, 35:2, 163-175, DOI: [10.1080/02572117.2015.1113000](https://doi.org/10.1080/02572117.2015.1113000)

To link to this article: <http://dx.doi.org/10.1080/02572117.2015.1113000>



Published online: 18 Dec 2015.



Submit your article to this journal [↗](#)



Article views: 20



View related articles [↗](#)



View Crossmark data [↗](#)

Reading and the orthography of isiZulu

Sandra Land

Adult and Community Education Unit, Durban University of Technology, Pietermaritzburg, South Africa
Email: sandraL@dut.ac.za

This exploratory study aims to extend our understanding of reading in isiZulu, the most widely spoken indigenous language in Southern Africa, by exploring measurable aspects of eye movement patterns of a group of competent adult readers of isiZulu. In doing so, the study offers an exploration of the particular demands that Zulu orthography makes on readers, and offers a tentative profile of the reading processes currently exhibited by proficient adult readers of isiZulu. The study indicates that with an average reading speed of 815 lines per minute (lpm), isiZulu text takes more time to read than text in other alphabetic languages for which data is available. Relative to other languages, readers showed short saccades (4.05 letters) long durations of fixation (0.3 seconds) and more frequent regressions over spans of text (an average of 1 regression every 24 letters).

Introduction

Although reading became commonplace a couple of centuries ago, and books and papers started to be published in African languages in the 1800s (Moropa, 2010), much remains to be discovered about reading in African languages.

Writing systems in Southern African languages were developed using the Roman alphabet, and until recently, there appears to have been a general assumption, perhaps linked to the thinking in the linguistic interdependence hypothesis referred to by Pretorius and Mampuru (2007), that readers of all languages using this alphabet use similar reading skills that transfer directly across languages. However, research suggests that reading patterns differ across languages and orthographies (Ellis et al., 2004; Georgiou et al., 2008; Tong & McBride-Chang, 2009; Ziegler & Goswami, 2005; Hutzler et al., 2008), but that the many variables involved in the differences are little understood (Rayner et al., 2009).

With 10.7 million first language speakers, isiZulu is the most widely spoken indigenous language in South Africa (van der Merwe & van der Merwe, 2006). Most first language speakers of isiZulu learn to read in their mother tongue and in English—two languages that differ radically from each other in both structure and orthography. The implication of this is that children and adults learning to read in both these languages might be required to develop parallel and contrasting sets of skills. It seems that this possibility has not yet been considered by developers of readers or training programmes for teachers of reading.

A great deal has been documented about English orthography and optimal reading strategies for its readers, but there is as yet scant research on reading in African languages (Pretorius & Mokhwesana, 2009). This paper reports on a study that investigated silent reading of authentic continuous isiZulu text by competent adult first language readers. The aim of the study was to profile the

reading processes currently exhibited by proficient adult readers of isiZulu in the light of particular features of its orthography. The study follows an earlier one in the same area by myself (Land, 2011), in which doubtful findings were that adult readers did not appear to read isiZulu with more frequent fixations than English, that some participants made more regressions reading English than they did reading isiZulu, and that there was little difference in the duration of fixations across languages. The study suggested that readers who made a high number of fixations and regressions did so in both languages, indicating that the particular reading pattern of an individual was a more telling factor, rather than language or orthography. However, this 2011 study had severe limitations. It was based on only 13 participants who were not asked to demonstrate their reading speed and competence before their eye movements were recorded. Also, it was conducted before the isiZulu package that maps eye movement directly onto text was developed. So, on the isiZulu texts, eye movements were not as precisely measured as they were in the study reported on in this paper. A striking feature of participants' eye movement records in the 2011 study was that 'the scores of nearly all the readers are consistent with very low levels of reading skill, even though all the readers had had the benefit of tertiary education, some to the level of PhD' (Land, 2011: 64). With participants' level of reading proficiency called into question, the study was curtailed and the focus of the paper that reported on it (Land, 2011) is squarely on the difficulties in comparing reading across languages.

In contrast, the study reported on in this paper was designed to avoid the pitfalls of that earlier study; it required participants to demonstrate a high level of competence in reading prior to participation; is based on a sample large enough to reach statistical significance; and used Reading Plus's isiZulu package (described below), which enabled the researcher to collect more extensive and precise data than had been possible in the 2011 study.

Orthographic depth and consistency

With regular, near perfect letter-sound representation, the orthography of isiZulu is consistent and transparent, and pronunciation of words is predictable from their spelling. In contrast, orthographies termed deep or opaque, such as that of English, do not have a regular relationship between graphemes and phonemes, so that it is impossible to predict without prior knowledge how a printed word will sound. According to the orthographic depth hypothesis (Frost, 2007), in orthographies where pronunciation of words is predictable from their spelling, readers are likely to read by reconstructing the sounds of speech in their minds on the basis of the relationship between orthographic cues and phonology. An extension of the above hypothesis is Ziegler and Goswami's psycholinguistic grain size theory (2005), which suggests that readers of transparent orthographies are likely to rely on small grain size units of text, in other words to process pieces of text of only a few letters at a time, such as a syllable. This strategy contrasts with that which seems to be optimal for languages with irregular sound-letter representation where readers must respond to larger grain size units of text, such as whole words, or even clusters of frequently collocated short words.

The strategy of reconstruction of speech sounds from units of text at possibly the level of the syllable may well be used by proficient readers of isiZulu, not only because they can rely on the direct sound-letter correspondence in its consistent orthography, but also because it might give them an effective way of navigating through its agglutinative structure and conjoined writing system.

Agglutination

Agglutination differs across languages in pattern, degree and parts of speech where it occurs. IsiZulu and other Nguni languages of Southern Africa do not feature the compound nouns that result in astonishingly lengthy words such as German's *Donaudampfschiffahrtselektrizitätenhauptbetriebswerkbauunterbeamtengesellschaft* (Association for Subordinate Officials of the Head Office Management of the Danube Steamboat Electrical Services) (H2G2, 2007).

In contrast, in the Nguni agglutination pattern, meaning is often modified by very short conjoined morphemes that cluster round word stems in single words. It is not uncommon for complex words to contain five or more morphemes modifying meaning, for example the second word in the phrase: *Isithombe esingakwesokunxele* (the picture which is on the left), has six affixes: *e/si/nga/kwe/so/ku/-* before the root word for 'left': *-nxele*.

Agglutination does not always result in longer, more complex words. Like isiZulu and other Nguni languages, the Sotho languages are agglutinating Southern African Bantu languages, but in their writing system, agglutinating morphemes are not conjoined.

The contrast between agglutination patterns in five agglutinating languages, isiZulu, Finnish, Turkish, Northern Sotho and Setswana is demonstrated in their equivalents for the sentence 'Let us not allow the languages of this country to be destroyed' (12 English words):

- In isiZulu: *Masingavumeli ukuthi izilimi zakulelizwe zishabalale* (5 words)
- In Finnish: *Älkäämme antako että kielten tämän maan tuhoutua*, (7 words)
- In Turkish: *Bize bu ülkenin dilleri yok edilmesine izin vermeyelim* (8 words),
- In Northern Sotho: *A re se ke ra dumela gore dipolelo tša naga ye di senyege* (13 words), and
- In Setswana: *A re se dumelele dipuo tsa naga e go senngwa* (9 words)

The comparison between the number of words in English and the two Sotho languages (i.e. Northern Sotho and Setswana) shows that agglutination itself does not necessarily result in lengthy complex written words.

Conjoined writing system

Linguists who developed the written form of isiZulu opted for a conjoined orthography to represent its agglutinative structure because its patterns of inter-morpheme vowel elision and coalescence would be difficult to accommodate in a disjunctive writing system (de Schryver & Wilkes, 2008). However, there might be costs to this that are borne by readers, who must deal with long, complex words whose composition changes with semantics. Average word length in the four isiZulu texts used in this study is 7.73 letters. This is similar to average word length in text from *Isolezwe*, a popular isiZulu newspaper in KwaZulu-Natal (KZN), which is 7.17 letters (based on a collection of articles comprising 5055 words from issues in November 2013). In comparison, average overall word length in *The Mercury*, a popular English newspaper in KZN, is 4.85 letters (based on a collection of articles comprising 5184 words from issues in November 2013). This figure is close to that found in a study of European newspaper text, which found average word length to be 4.6 letters in English, 4.7 in Danish, 4.9 in Swedish, 5.6 in German and 7 in Finnish (Björnsson, 1983).

The most immediate implication of this for reading isiZulu text relates to automaticity. Essential for proficient reading, this is the 'direct recognition of multi-letter units and whole words' (Verhoeven et al., 2011: 387) or the 'ability to quickly recognise words automatically, with little cognitive effort or attention' (Penner-Wilger, 2008: 2), gained through extensive practice in decoding words or parts of words. Its development is related to the ease of recognition of these units, and it appears that in all languages, short, high frequency words are the most easily recognised, and the most readily automaticised (Abadzi, 2011).

There are some short high frequency isiZulu words that do not change form, e.g. verbs used as commands, conjunctives such as *ngoba* or *uma*, and common forms of nouns. However, most words appear in a wide range of flexible forms consisting of the root embedded in many possible permutations of conjoined prefixes, infixes and suffixes that modify meaning, and inevitably make the word stem visually indistinct. For example, among the many possible forms in which the root word *-funda* (meaning 'read' or 'learn') appears are:

- *Funda!* (Read!)
- *masifunde* (let's read)
- *masifundelane* (let's read to one another)

- *usefundile* (he/she has read)
- *njengomfundi* (as a learner)
- *akafundanga* (he/she has not learned)
- *emfundweni* (in the learning)
- *ofundisiwe* (that which was taught) and so on.

The agglutinative nature of the language combined with the conjoined orthography means that readers must parse compound words into a number of morphemic units and register the meaning conveyed by each one in order to access the meaning of text. For example, readers must parse the compound word *masithandazelane* (let us pray for one another) into six morphemic units (*ma/si/thandaz/el/an/e*) which in this case comprise a root word preceded by two affixes and succeeded by three more. A small change in one of the morphemic units changes the meaning (e.g. *manithandazelane* 'you should pray for one another'), therefore reliance on a lexicon of whole word schemas is unlikely to be an effective reading strategy, because it would not enable readers to register and respond to small but semantically important shifts in compound word forms.

Homogeneity in visual textual patterns

A third characteristic of isiZulu orthography that might influence reading patterns has to do with its vowel sounds (only five), and its Consonant-Vowel (CV) syllable pattern, and partly with decisions made when the language was first written. In the orthography of isiZulu there are no contiguous vowels, since the orthography has no distinction between long and short vowels, and in diphthongs vowels are separated by consonants (e.g. *ngayiphawula* 'that I told'). There are also no double consonants in isiZulu (as there are in the English word 'adder'), although combinations of up to five consecutive consonants are possible, for example *lzontshontshwa* ('it will be stolen'). The effect of this is that there are fewer permissible letter combinations in isiZulu orthography than in English orthography. Hence the long words of isiZulu are composed of differing permutations of a limited number of frequently recurring syllables, so that the same combinations of letters (e.g. *zi*, *ku*, *ka*, *nga*, or *ngu*) recur frequently in words that might or might not be semantically related.

Analysis of text from the popular isiZulu newspaper *Isolezwe* reveals that 44 three-letter strings recur 100 times or more, with 10 of them recurring more than 200 times. In comparison, in text from the English newspaper *The Mercury*, only 5 three-letter strings recur 100 times or more, and only 1 of them (the) recurs more than 200 times. This results in a high degree of visual homogeneity amongst units of text in isiZulu; in other words, unrelated units of text can be visually quite similar.

Tonal patterns

Finally, tonal patterns are a crucially important cue for meaning in oral communication in isiZulu, and facilitate a listener's interpretation of its limited range of permitted syllables as they group and regroup in abundant possible permutations. Second language speakers are often frustrated when, having mastered vocabulary, the concord system and word order, they are still not understood by

native speakers because their tonal patterns are wrong. In spite of this central importance, isiZulu orthography carries no tone markers.

Implications of this for readers are that they must seek cues for meaning in other sources such as context, and there is a high degree of potential for confusion in relation to the many morphemes which are homographic but differ completely in meaning according to their tone. For example, *-nga-* spoken in a low tone negates a sentence, or, spoken in a high tone, indicates potential. Thus *Le nkomo ingahlatsywa*¹ can mean 'this cow must not be killed' (if *-nga-* has a low tone) or 'this cow may be killed' (if *-nga-* has a high tone), an ambiguity which presumably would leave its recipient in a bit of a quandary if the communication was sent in a note.

Data from eye movement recordings

Recordings of the eye movements of competent readers in different languages show that as they read, the point of their visual focus fixes on successive points in the text. The brain receives information from the eye only during moments of fixation (Prime et al., 2011; Rayner, 2009). In cognitive processes based on learned associations, readers transform information from visual patterns of print into representations of spoken language. The decoded print is produced as speech if the reader is reading aloud², or, in silent reading, perceived as an inner voice (Rayner et al., 2009). This inner voice produces clear language within the mind at a speed far in excess of speech and should not be confused with sub-vocalised reading, where the speech organs mimic motions of reading aloud, limiting reading to the speed of speech.

Equipment used to record eye movements in reading produces records of:

- Fixations, or points of focus on lines of text as the reader repeatedly shifts his/her focus through the text, usually towards the right;
- saccades: the movement of the eyes from one fixation to the next;
- regressions, made if a reader shifts the point of focus to the left, thus 'reversing' in relation to the direction in which text is read;
- the duration of fixations: the length of time the gaze is directed at particular points in text.

There is now general agreement that linguistic and cognitive processes are strong determinants of eye movement (Reichle et al., 2008; White, 2008), and the association between fixations and attention (Paulson, 2005: 342; Miellet et al., 2009: 721) implies that patterns of eye movements during reading may yield information about how different orthographies or different languages influence eye movement patterns. A survey of eye movement studies of skilled readers of continuous text in different languages shows that:

- Fixations of readers of German tend to be shorter than those of readers of English, lasting between 190 and 201 ms (Hutzler et al., 2008), which is 20 to 60 ms shorter than fixations of English readers (Rayner, 2009; Hutzler et al., 2008). As cognate languages, German and English share many characteristics, but German has a transparent orthography. Thus the difference between

average fixation duration suggests that readers devote longer periods of gaze to points in English text with its opaque orthography, than do readers of German's more transparent orthography.

- Span of recognition too seems influenced by orthographical features. Bilingual readers exhibit different spans of recognition in different languages (Reichle et al., 2003). The average span of recognition among readers of Hebrew text is narrower than it is for English text because Hebrew text is more densely packed than English, and readers of Japanese and Chinese scripts (even more dense than Hebrew because of ideographic components), record an even narrower span of recognition (Reichle et al., 2003). The span of recognition is always asymmetrical, skewed towards the direction in which the text is read, therefore apparently dependent on orthographic context (Liversedge & Findlay, 2000). In English the span extends from about three characters left of the point of focus to about fourteen characters to the right of this point (Rayner, 2009); however, in Hebrew (read from right to left) the span extends further towards the left of the point of focus (Liversedge & Findlay, 2000: 10; Miellet et al., 2009: 726).
- Hautala et al. (2011) found a 25% rate of regressions on Finnish text compared with the English rate of 10–15% noted above, tempting speculation that this may be linked to orthographic features of an agglutinative language.

In an interesting eye tracking study of grade 4 children whose first language was isiZulu and whose second language was English, van Rooy and Pretorius (2013) found that they read English text faster than isiZulu text, and exhibited more fixations and refixations, and longer duration of fixations reading in isiZulu than in English. This was the case even though these children were in their first year with English as the medium of learning, and half of them could not understand instructions in English. Since the children had normal oral proficiency in isiZulu, these findings were surprising, and the researchers concluded that the children might be struggling with particular features of the orthography of isiZulu.

Reading subtitles on a TV screen while watching a programme is very different from reading continuous text, but Hefer's observation (2013) that first language Sesotho speakers read subtitles in English faster than in Sesotho, yet read Sesotho with greater comprehension is telling. This is especially so since Sesotho is an agglutinating language with a disjunctive writing system, so slower reading speed here cannot be because of very long words. Hefer concluded that lack of practice in reading Sesotho was as a result of reading almost exclusively in English at school. This may indeed be the case, but it would be useful to consider possible effects of orthographical features, such as potential for ambiguity as well.

Methodology

In this exploratory study, eye movements of a group of proficient first language isiZulu readers were tracked as they silently read passages of authentic continuous text. In this exercise, the researcher aimed to:

- establish a tentative profile of eye movement patterns that currently characterise well developed reading skills pertaining to the orthography of isiZulu, and

- to consider links between recorded eye movement patterns and factors that possibly shape them.

Sample

Since there are as yet no standardised measures of reading proficiency in isiZulu (van Rooy & Pretorius, 2013), an invitation to readers who regarded themselves as proficient was put on the UKZN notice system, inserted into copies of isiZulu newspapers for sale in a supermarket, and sent to local Zulu journalists, publishers of isiZulu texts, post-graduate students and high performing learners at a local high school. Close to 150 people responded and, to ensure that they were indeed proficient readers, underwent a screening test (Appendix 1). 38 participants (the most proficient 25% of the pool of respondents) were selected, all of whom were first language isiZulu speakers.

Five participants were excluded because of imperfect recordings. The remaining group of 33 included:

- 15 women and 18 men
- 24 professionals (11 of whom were part-time post-graduate students), 5 full-time university students and 4 high school students.

The group ranged in age from 16 to 61, with 4 under 20, and another 4 over 50.

Instruments

Two instruments were used in this study: isiZulu texts and the Visagraph eye movement recording system. Texts used (Appendix 2) were excerpts from authentic (as opposed to translated) isiZulu novels.

There is as yet no official grading system for isiZulu texts.³ Therefore, three lecturers in Education at UKZN whose first language is isiZulu were asked to comment on a number of texts considered for this study, and judged these four texts to represent isiZulu literature well, with two texts exemplifying easy to read text, and two exemplifying demanding text. Although the judges relied purely on 'gut feel', their ranking matched measures of sentence complexity on the four texts. The two texts they judged to be the easiest are referred to here as Text 1 and Text 2. Text 1 has 19 sentences with an average number of 1.4 clauses per sentence, and Text 2 has 15 sentences with an average number of 1.8 clauses per sentence. The two texts judged to be more difficult are referred to here as Text 3 and Text 4. Text 3 has 10 sentences with an average number of 2.7 clauses per sentence. Text 4 consists of only 6 sentences with an average number of 4.2 clauses per sentence (see Texts 1–4 in Table 1 ranked from easiest to more difficult). There was not much difference in word length between the texts:

- Text 1 (*Sengikhulile*) had an average number of characters per word of 7.65.

Table 1: Characteristics of texts (excluding first and last lines)

| Texts | Word count | Letter count | Line count | Sentence count |
|---------------------------------|------------|--------------|------------|----------------|
| 1. <i>Sengikhulile</i> | 100 | 765 | 16 | 19 |
| 2. <i>Ubudoda abukhulelwa</i> | 100 | 747 | 14 | 15 |
| 3. <i>Amahlaya alala insila</i> | 100 | 831 | 17 | 10 |
| 4. <i>Ingwe idla ngamabala</i> | 100 | 749 | 15 | 6 |

- Text 2: (*Ubudoda abukhulelwa*) had an average number of characters per word of 7.47.
- Text 3: (*Amahlaya alala insila*) had an average number of characters per word of 8.31.
- Text 4: (*Ingwe idla ngamabala*) had an average number of characters per word of 7.49.

This similarity in word length across the texts in spite of differences in difficulty level perceived by these readers is interesting, since word length in terms of letters or syllables is a key factor in readability formulae for text in European languages (e.g. SMOG index, Flesch-Kincaid formula, Gunning Fog index, LIX) (Readability formulas, 2014).

Vocabulary in Text 1 and Text 2 was seen to comprise high frequency words and expressions common in isiZulu currently spoken in urban areas, and Texts 3 and 4 to include words and expressions associated with 'deep isiZulu', which is the basis of formal academic studies in isiZulu and tends to be spoken in remote rural areas.

These texts were slightly adapted to suit the requirements of the Visagraph equipment, which specified font type, point size, and line spacing, and required there to be 100 words in the lines between the first and last lines of each text. Texts ranged from 14 to 17 lines.

The Swedish-built Visagraph eye movement recording system uses infrared differential reflectivity to detect eye movement, at a sampling speed of 60 Hz (Compevo, 2012: 1). The system requires readers to wear a mask with receptors aligned to the pupils of their eyes. Although systems with higher sampling speeds are available, several features of this system made it suitable for this study, the focus of which was on natural silent reading of authentic texts. These features were:

- the system affords free head movement, since the mask connects to a computer via a flexible 2.4 m computer cable. Thus readers can assume natural reading positions not possible in systems requiring readers to rest their faces in a frame;
- the system works in natural light;
- the movement detectors are in the mask, and so texts are read from printed paper, and not computer screens.

Data collection

Both qualitative and quantitative data were collected, in a process that took approximately one hour for each participant.

Readers first proved their reading competence by repeating the reading test in Appendix 1 while being timed by the interviewer and asked to recount what they recalled of the content. Thereafter, they were interviewed about how they learnt to read and their reading habits, and then their eye movements were recorded as they silently read the texts described above, each of which was printed on an A4 sheet of plain paper held by the reader at a reading distance he or she found comfortable. Immediately after reading each text, readers recounted what they had understood of it, and while the reading experience was fresh in their minds, participated with the researcher in a detailed examination and voice recorded discussion of the tracks of their eye movement (mapped directly onto electronic versions of the texts they read). Since the researcher is a fluent speaker of

isiZulu, participants were free to use either isiZulu or English, or both languages in this process. In this discussion, readers related features in the recorded eye movements with what they remembered of the smallest moments of their reading experience as they read each text and constructed a mental representation of its meaning.

The mapping of their eye movement tracks onto electronic versions of the texts they read was possible because the Reading Plus organisation in the United States had created an isiZulu language package containing the selected texts for this piece of research. The number of successful recordings with good recall of the contents differed across the texts. There were 32 successful recordings of Text 1, 31 of Text 2, 30 of Text 3, and 31 of Text 4.

Findings

Only 2 of 33 indicated that they read mainly in isiZulu (they are journalists of an isiZulu language newspaper), but all participants said that they were in the habit of reading isiZulu text regularly. This ranged from about twice a week for some to several hours every day for others. The type of texts they reported reading included draft articles and text book sections (read by the journalists and staff in a publishing company), students' assignments written in isiZulu (read by lecturers), and isiZulu newspapers or books.

Relationship between reading rate and other variables

Figures 1–4 show readers' scores for each text ranked from highest to lowest in terms of reading rate. Three scores are shown for each reader: reading rate in terms of words per minute (wpm), number of fixations, and number of regressions. Scores show the same inverse relationship between reading speed and number of fixations, and reading speed and number of regressions, that is seen in other languages.

A comparison of Figures 1 and 2 (showing readers' performance on the two easier texts) with Figures 3 and 4 (showing readers' performance on the two more difficult texts) shows the readers' lower reading rate, and higher number of fixations and regressions on the more difficult texts.

Discussion

Reading rate

Participants averaged 122 and 114 wpm on Texts 1 and 2, and 91 and 96 wpm on Texts 3 and 4, and the average reading rate calculated over all four texts was 105.75 wpm. The differences across texts were significant ($F(3, 29) = 8.669, p < 0.01$), with participants reading the two texts judged easy to read faster than the two texts that were seen to be more difficult. Thus, reading rate slowed as sentence length and perceived level of difficulty increased. In terms of words per minute, all these scores sound low in comparison with the 300 wpm established as a benchmark rate of competent silent reading⁴ in English (Rayner & Pollatsek, 1989). However, a comparison of words per minute across different languages is not useful because of differences in average word length, such as those noted above, across European languages, ranging from 4.6 characters per word in English to 7 in Finnish (Björnsson,

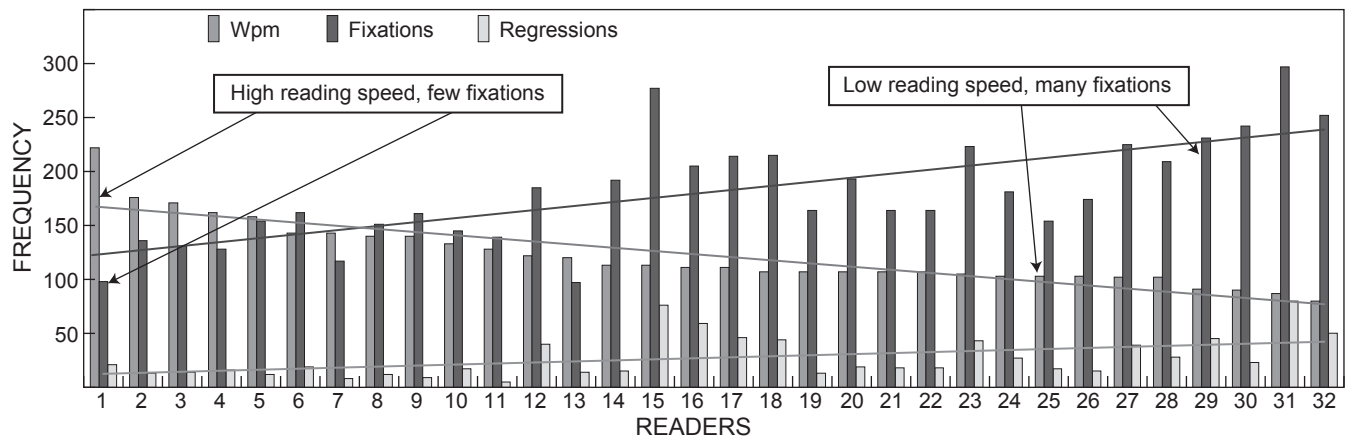


Figure 1: Text 1: Reading speed, fixations and regressions

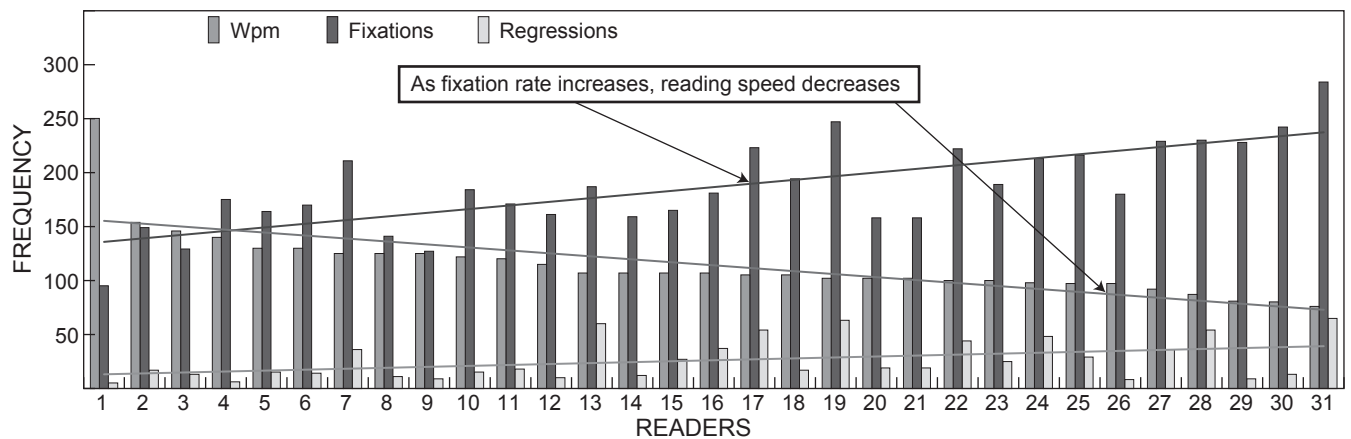


Figure 2: Text 2: Reading speed, fixations and regressions

1983). Since average word length across the four isiZulu texts used in this study is 7.73 letters, measures based on letters or syllables read per minute provide a more meaningful comparison of reading speeds.

Average reading speeds per text in terms of letters per minute (lpm) were:

- 934 lpm on Text 1 (*Sengikhulile*)
- 851 lpm on Text 2 (*Ubudoda abukhulelwa*)
- 755 lpm on Text 3 (*Amahlaya alala insila*)
- 718 lpm on Text 4 (*Ingwe idla ngamabala*)

The average reading speed on the easy-to-read texts was 892 lpm, and on the difficult texts 736 lpm, with an overall average of 815 lpm. So on the basis of lpm too, it appears that reading the orthography of isiZulu is more time consuming than the orthography of English: at 300 wpm, competent English readers are reading about 1380 characters per minute.

Fixations

The number of fixations recorded per 100 words varied widely between readers and across the texts, but a significant trend in the recordings was a higher rate of fixations in

the more difficult texts (3 and 4) compared with the easier texts (1 and 2) ($F(3, 29) = 8.114, p < 0.01$).

- In Text 1 (*Sengikhulile*) readers averaged 181 fixations per 100 words and 122 wpm, which equals 220 fixations per minute, or 3.67 fixations per second.
- In Text 2: (*Ubudoda abukhulelwa*) readers averaged 187 fixations per 100 words, and 113.84 wpm, which equals 212 fixations per minute, or 3.54 fixations per second.
- In Text 3: (*Amahlaya alala insila*) readers averaged 213 fixations per 100 words and 91 wpm, which equals 194 fixations per minute, or 3.63 fixations per second.
- In Text 4: (*Ingwe idla ngamabala*) readers averaged 236 fixations per 100 words and 96 wpm, which equals 227 fixations per minute, or 3.78 fixations per second.

With an average reading speed of 105.7 wpm, and 204.25 fixations per 100 words, the average number of fixations per minute was 215.6, or 3.6 fixations per second.

This is markedly fewer fixations per second than the 5 fixations per second noted by Reichle et al. (2003) for competent readers of English, and the 5.2 fixations per second noted for readers of German (Hutzler et al., 2008).⁶ Implications are that there is a relatively high degree of ambiguities for readers to resolve in isiZulu orthography, or

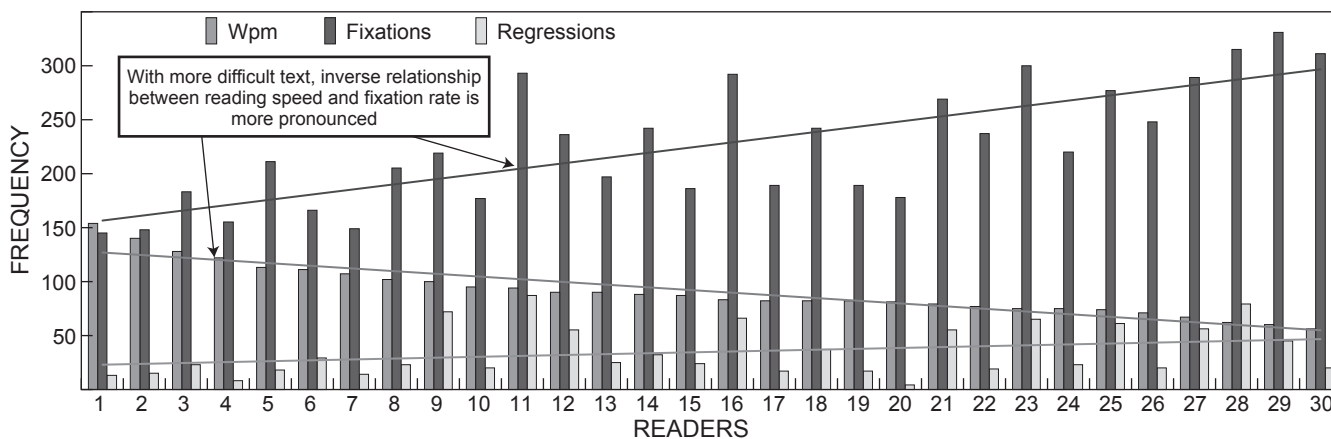


Figure 3: Text 3: Reading speed, fixations and regressions

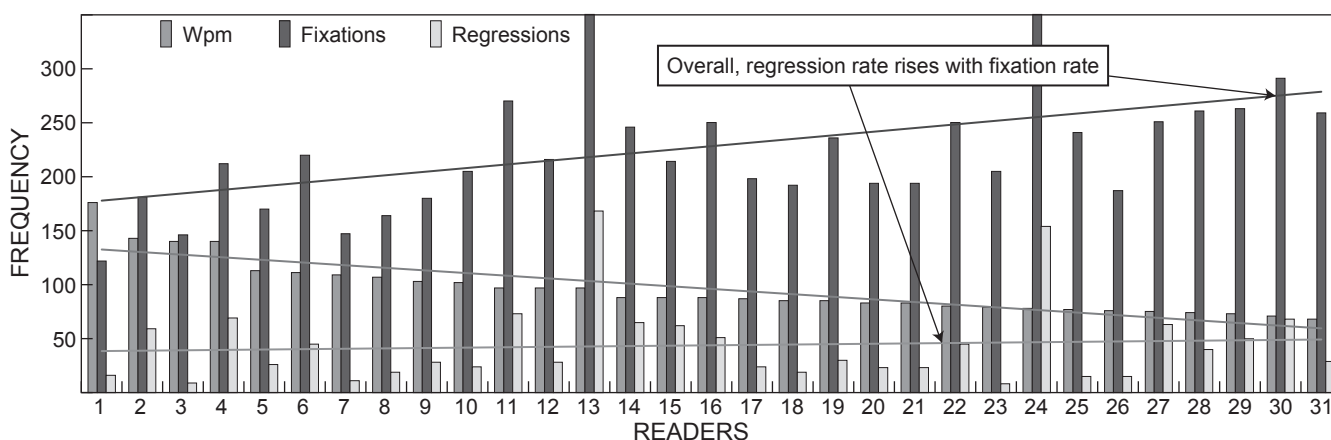


Figure 4: Text 4: Reading speed, fixations and regressions

that its features require a relatively long integrative process for readers as they construct their conceptualisation of the meaning in the text.

Readers' fixations averaged 0.3 seconds overall, with an insignificant difference ($F(3, 29) = 0.551$, ns) between the duration of fixations on the easier-to-read texts (0.29 and 0.3 of a second) and the more difficult texts (0.31 and 0.3 seconds).

Duration of fixations is known to vary with factors such as text difficulty (Rayner, 2009). This average duration is longer than the average recorded for competent readers of English (0.2–0.25 seconds) (Rayner, 2009; Hutzler et al., 2008), and also longer than the average recorded by German readers (190–201 ms) (Hutzler et al., 2008). This suggests that if readers of German (an orthographically transparent language, like isiZulu) are able to perceive enough information to move to the next point in the text after only about 200 ms, there are features of isiZulu orthography that require readers to make longer fixations before they gain enough information to move on.

Length of saccades

The limits of each saccade are marked by the points of successive fixations on the text. With these isiZulu texts, readers' average saccade length was 4.05 characters. Their saccades varied significantly across texts ($F(3, 29) = 7.192$, $p < 0.01$), and were shorter on the more difficult texts (3 and 4) than on the easier texts (1 and 2).

- In Text 1 (*Sengikhulile*), the average saccade length was 4.59 characters.
- In Text 2: (*Ubudoda abukhulelwa*) the average saccade length was 4.26 characters.
- In Text 3: (*Amahlaya alala insila*) the average saccade length was 3.74 characters
- In Text 4: (*Ingwe idla ngamabala*) the average saccade length was 3.67 characters

Competent readers of English tend to record saccades of between 7 and 9 characters, but these can vary from 1 to 20 characters (Rayner, 2009).⁷

While the limits of each saccade are marked by the points of successive fixations, the span of recognition is anchored around one point of fixation, and refers to the stretch of text processed by the reader from that point of fixation. Therefore, although saccades refer to movements of the eyes between

Table 2: Analysis of variance across the texts

| Eye movement records | | N | Mean | Std. Deviation | ANOVA Tests | |
|---------------------------------|--------|----|--------------------|----------------|-------------|---------|
| | | | | | F | p value |
| Fixations | Text 1 | 32 | 181 ^a | 48.9 | 8.114 | 0.000* |
| | Text 2 | 31 | 187 ^a | 40.1 | | |
| | Text 3 | 30 | 213 ^b | 55.7 | | |
| | Text 4 | 31 | 236 ^{ab} | 72.8 | | |
| Regressions | Text 1 | 32 | 26 | 19.3 | 2.767 | 0.045* |
| | Text 2 | 31 | 27 | 18.4 | | |
| | Text 3 | 30 | 36 | 23.9 | | |
| | Text 4 | 31 | 41 | 37.0 | | |
| Saccade length | Text 1 | 32 | 0.6 ^a | 1.3 | 7.192 | 0.000* |
| | Text 2 | 31 | 0.57 ^{ab} | 1.04 | | |
| | Text 3 | 30 | 0.45 ^c | 1.01 | | |
| | Text 4 | 31 | 0.49 ^{bc} | 0.98 | | |
| Duration of fixations | Text 1 | 32 | 0.29 | 0.58 | 0.551 | 0.648 |
| | Text 2 | 31 | 0.3 | 0.04 | | |
| | Text 3 | 30 | 0.31 | 0.04 | | |
| | Text 4 | 31 | 0.31 | 0.06 | | |
| Words per minute | Text 1 | 32 | 122 ^a | 232 | 8.669 | 0.000* |
| | Text 2 | 31 | 114 ^{ab} | 235 | | |
| | Text 3 | 30 | 91 ^c | 56 | | |
| | Text 4 | 31 | 96 ^{bc} | 187 | | |
| Time taken to read (in seconds) | Text 1 | 32 | 52 ^a | 10.9 | 12.742 | 0.000* |
| | Text 2 | 31 | 55 ^a | 11.7 | | |
| | Text 3 | 30 | 66 ^b | 16.4 | | |
| | Text 4 | 31 | 70 ^b | 13.81 | | |

*Significant at 5% level

^{a, b, c} Means with different superscripts are significantly different (Tukey test results)

fixations, and span of recognition to the stretch of text recognised during a fixation, short saccades suggest short spans of recognition.

Thus the relatively short saccades of these readers indicate that, like the densely packed orthographies of Hebrew, Japanese and Chinese (Reichle et al., 2003), the orthography of isiZulu limits readers to a relatively short span of recognition.

Regressions

Rates of regressions can be viewed as a percentage of fixations or as frequencies over time, or over spans of text.

The average number of regressions among the group was 32.97 over 100 words, and as a percentage of total fixations (32.97/205.48) this equals 16%. The rate of regressions was significantly different across the different texts ($F(3, 29) = 2.767, p < 0.05$); readers made on average approximately 50% more regressions on the two more difficult texts than on the two easier to read texts.

In the easier texts, 1 (*Sengikhulile*) and 2 (*Ubudoda abukhulelwa*), readers averaged 26 (14.3% of fixations) and 27 (14%) regressions respectively. On Text 1, three readers made less than 10 regressions, and on Text 2, five readers made less than 10 regressions. On Texts 3 and 4, the more difficult texts, the rates of regression were 36 (16.9%) and 41 (17.3%) respectively. On both the more difficult texts, only two readers made less than 10 regressions.

The overall rate of regression as a percentage of fixations was lower than the rate of 25% found among Finnish readers (Hautala et al., 2011), but similar to the rate found among competent readers of English text, where roughly 10–15%

of fixations are regressions (Paulson, 2005; Reichle et al., 2003; Rayner, 2009).

In terms of time, on Texts 1, 2 and 3, readers regressed on average once every 1.99, 2.05 and 1.94 seconds respectively, and every 1.6 seconds on Text 4. This rate is similar to that of English readers, which is about one regression every two seconds (Paulson, 2005: 342; Reichle et al., 2003: 348; Rayner, 2009).

In relation to regressions made over spans of text, readers made on average one regression every 29 characters and every 28 characters on Texts 1 and 2 respectively. On Texts 3 and 4, readers regressed more frequently, with on average once every 23 characters on Text 3 and once every 18 characters on Text 4. This rate is more frequent than the usual regression rate of competent readers of English over spans of text: if we consider that at 300 wpm, English readers read approximately 10 words in two seconds, and therefore make 1 regression over +/- 46 characters (assuming an average word length of 4.6 characters). In comparison, over all four texts, these readers made an average of 1 regression for every 24 characters.

Factors that may contribute to observed patterns

The above findings indicate that isiZulu text takes more time to read than text in other alphabetic languages for which data is available, with shorter saccades and thus more frequent fixations, and more frequent regressions over spans of text. Factors possibly influencing these scores can be associated with readers, contexts and texts.

Readers

Since most of the readers in this sample stated that they read more often in English than isiZulu, it is possible that, like the Sesotho readers observed by Hefer (2013), only the speediest among them demonstrate eye movement patterns that characterise really highly developed silent reading skills in isiZulu. In the graphs above, readers' scores are ranked from the swiftest downwards, and the trend of an inverse relationship between reading speed and number of fixations is significant and clear ($r = -0.712$, $p < 0.01$). As with readers of other languages, the comparatively low number of fixations made by swifter readers suggests that they have instant or automatic recognition of more words or text units than the slower readers, whose more frequent fixations point to more cognitive effort in decoding words, and thus less automatic recognition. It is possible to achieve a high rate of automaticity only with high exposure to text, and regular reading practice (Abadzi, 2012), and since two of the swiftest readers in this sample are journalists who spend their working hours writing or proofreading isiZulu text, it is likely that their high speed and low fixation rate relative to the rest of the sample results from thousands of hours of reading practice. Their situation is unusual, since in most work and study contexts in KwaZulu-Natal, people are more likely to read more text in English than isiZulu, and thus probably have less practice in reading text in isiZulu. However, the selection process for this study suggests that it is nevertheless likely that the people in the sample are currently representative of skilled readers of isiZulu text in KwaZulu-Natal today.

Context

The recording process in this study simulated natural reading in that the readers' head movements were not restricted, they read text printed on A4 paper, in natural light, and held the paper at a distance they found comfortable. But they wore a mask, and knew that their eye movements were being recorded. This will have influenced their reading, and it is impossible to know for certain how closely these scores reflect their unobserved natural reading. However, since one cannot observe unobserved behaviour, it is hoped that participants' positive responses to efforts of the researcher to put them at their ease, and their statements indicating enjoyment of the recording process suggest that their recorded eye movements at least approximate their usual reading behaviour.

Texts

It is possible that, as suggested by van Rooy & Pretorius (2013), features of isiZulu orthography present its readers with particular demands that could be strong contributing factors to the reading patterns discovered in this study.

Lix is a readability formula developed specifically to assess readability across languages. The formula, tested for validity on thousands of texts in different languages (Björnsson, 1983) is based simply on word and sentence length. Lix values of 20 correspond to very easy text, of 40 to average text, 50 to difficult text (55 = technical literature) and 60 to very difficult text. In a study that compared readability of several newspapers in 11 European languages, Björnsson found Lix values of between 47 and 65 for text in newspapers

in Sweden, Norway, Great Britain, France, Germany, Italy, Spain, Portugal, Finland and Russia (Björnsson, 1983).

In a cautious comparison, since validity of the Lix formula for African languages has not been tested, the Lix score for *Isolezwe*, an isiZulu language newspaper, is 97—way beyond 60, the Lix measure of very difficult text. The application of the Lix formula to the texts used in this study yields the following scores:

- Text 1 (*Sengikhulile*): 87
- Text 2 (*Ubudoda abukhulelwa*) 83
- Text 3 (*Amahlaya alala insila*) 97
- Text 4 (*Ingwe idla ngamabala*) 94

This does indicate that in respect to aspects measured by the Lix formula, the orthography of isiZulu requires particular reading skills.

Implications of psycholinguistic grain size theory

If one accepts the logic of psycholinguistic grain size theory, it is very likely that readers of isiZulu rely on small grain size units of text, since it is clearly dependable, and a quick route to accurate reading (Ziegler & Goswami, 2005). This logic would provide an explanation for the pattern of frequent fixations, relatively slow reading speed, longer duration of fixations, and short saccades described above.

Agglutination and conjoined writing system

The need for readers to take cognisance of small but semantically important shifts in affixes in compound word forms could account for the relatively high number of fixations and longer durations of fixations recorded in this study. This finding resonates with much research cited by Rayner et al. (1998), which found that readers rely heavily on spaces between English words, and that unspaced text is difficult to read. A readers' account of making sense of a compound construction illustrates this:

- SL ...then you went back to *kwakukhona* and in that line to *wayesebenzela* and regressed there—*Nalapho ayesebenzela khona*.
- KZ I thought the *ayesebenzela khona*in my mind it was *ayesebenza*, so I have to confirm it not *ayesebenza*, actually is *ayesebenzela khona*.

Homogeneity in visual textual patterns

As noted earlier, repeated recurrence of particular strings of letters is a feature of the orthography of isiZulu. The consequent similarity in the visual appearance of many words would possibly be one of the reasons for the relatively long duration of fixations and short saccades described above. Distinction between visually similar words is more difficult and slower than between words that are obviously dissimilar (Abadzi, 2011). Thus the visual homogeneity between units of text may compel readers to take more time to distinguish among them, and to deal with comparatively short spans of text, for example, as one reader explained:

MS: Yes there, *wawune*—then I went back to *nekhwane*. It was like *khiwane* if you put i between kh and w, *ikhiwane* is a mushroom so I have a picture of a mushroom and the river.

Lack of indications of tone

The high rate of regressions recorded in this study may be partially accounted for by the readers' needs to adjust their expectations and possibly refer back to text already read as they search for cues to resolve ambiguities resulting from the absence of markers of tone. Many readers spoke of their need to pronounce words correctly in their minds, for example:

NM: Yes you have to separate the word *okwakungowokuphatha* because if you just carried on, sometimes you just do not find the meaning of it and you will not pronounce it correctly.

SL: Even though you are not reading aloud, you still have to pronounce the word correctly in your head?

NM: You see you have to pronounce correctly in your head to get the meaning.

Limitations

The sample was composed of 33 of the most proficient readers selected from a pool of 150 volunteers who identified themselves as competent readers of isiZulu, and therefore it is reasonable to regard the data as a valid representation of reading patterns of adults who are skilled readers of isiZulu. Conclusions could be drawn more confidently from a larger sample, and the picture may change with changes in reading practices.

As noted above, the Visagraph equipment used in this study is not as sensitive as some other makes of equipment available. However, features of the equipment enabled a closer simulation of natural silent reading of authentic texts than would have been possible with some of the other more sensitive types of equipment.

As with all research involving recorded eye movement, the effects of readers' awareness of being recorded are completely unavoidable.

Conclusion

A tentatively suggested profile of eye movement patterns that currently characterise proficient readers of isiZulu is:

- A reading rate of 736–892 lpm depending on text difficulty, with an overall average of 815 lpm; this suggests that isiZulu is read relatively slowly in comparison with other alphabetic languages;
- A fixation rate of on average 3.63 per second, with fixations lasting on average for 0.3 seconds. This suggests that readers require a relatively long period to process text perceived in each fixation compared with readers of other alphabetic languages for which data is available;
- An average saccade length of 4.05 characters, which indicates that readers' span of recognition is relatively narrow. This suggests that readers are likely to be relying on small grain size units of text to reconstruct language as they read;
- A regression rate similar to other languages as a percentage of fixations (16%), and in terms of time (1 regression every 1.89 seconds), but at 1 regression for

every 24 characters, relatively high in terms of regressions over spans of text.

Further research will test these initial suggestions. More investigation is needed to clarify the implications of these findings for teaching of reading in similar African languages to both mother tongue and non-mother tongue students. Nevertheless, especially since there is increasing agreement about the advantage that mother tongue facility brings to reading and learning, it is hoped that this will bring useful insights to the understanding of how readers respond to the demands of isiZulu orthography.

Notes

1. Thanks to Mr Ndela Ntshangase, a lecturer in isiZulu at the University of KwaZulu-Natal, for this example.
2. The meaning of speech produced by reading aloud may or may not be grasped by the reader. When it is not, the reader may be attending primarily to producing speech, or to thoughts unrelated to the text or the reading performance, thus decoding print to speech without engaging with its meaning. Although this is often described as 'barking at print' (Smith, 1994), readers may purposefully read aloud without understanding, e.g. in ritual readings of scriptures in languages readers do not understand but produce as speech, or when concepts are comprehended by listeners but not readers, e.g. academic texts produced for Tape Aids for the Blind.
3. Personal email communication 2013/04/12 from Sabelo Zulu, of Shuter & Shooter Educational Publishers.
4. Literature searches yield rates for reading aloud but not silently in other languages.
5. Literature searches do not yield comparative data for other African languages.
6. Comparative data is not yet available for African languages.
7. Literature searches do not yield comparative data for other African or European languages.

References

- Abadzi H. 2011. 'Reading in all languages: The unknown role of perceptual and memory variables'. Paper presented at the Comparative and International Education Society CIES Workshop. McGill University, Montreal. 1–5 May 2011.
- Abadzi H. 2012. Can adults become fluent readers in newly learned scripts? *Education Research International*. Hindawi Publishing Corporation 2012: 1–8.
- Björnsson CH. 1983. Readability of newspapers in 11 languages. *Reading Research Quarterly* 18(4): 480–497.
- Compevo 2012. Visagraph. Available at: www.compevo.se/VisagraphInfo.pdf [Accessed 12 April 2013].
- De Schryver G-M, Wilkes A. 2008. 'User-friendly dictionaries for Zulu: An exercise in complexicography'. Paper presented at the XIII Euralex International Congress: Universitat Pompeu Fabra, Barcelona. 15–19 July 2008.
- Ellis NC, Natsume M, Stavropoulou K, Hoxhallari H, van Daal VHP, Polyzoe N. 2004. The effects of orthographic depth on learning to read alphabetic, syllabic, and logographic scripts. *Reading Research Quarterly* 39(4): 438–468.
- Frost R. 2007. Orthographic systems and skilled word recognition in reading. In: Snowling M, Hulme C. (eds), *The science of reading: A handbook*. Oxford: Blackwell. pp 272–295.
- Georgiou GK, Parrila R, Papadopoulos TC. 2008. Predictors of word decoding and reading fluency across languages varying in orthographic consistency. *Journal of Educational Psychology* 100(3): 566–580.

- H2G2. 2007. The longest German word. Available at: www.h2g2.com/approved_entry/A29639046 [Accessed 12 April 2013].
- Hautala J, Hyönä J, Aro M. 2011. Dissociating spatial and letter-based word length effects observed in readers' eye movement patterns. *Vision Research* 51(15): 1719–1727.
- Hefer E. 2013. Reading first and second language subtitles: Sesotho viewers reading in Sesotho and English. *Southern African Linguistics and Applied Language Studies* 31(3): 359–373.
- Hutzler F, Braun M, Jacobs AM. 2008. On the specificities of the inverted-optimal viewing position effect and their implications on models of eye movement control during reading. *Brain Research* 1239: 152–161.
- Land S. 2011. Open to the flaw: Comparing the different skills required for reading English and isiZulu. *Language Matters* 42(1): 50–68.
- Liversedge SP, Findlay JM. 2000. Saccadic eye movements and cognition. *Trends in Cognitive Sciences* 4(1): 1–13.
- Memela N. 1992. *Sengikhulile*. Durban: New Readers Publishers.
- Miellat S, O'Donnell PJ, Seren SC. 2009. Parafoveal magnification: Visual acuity does not modulate the perceptual span in reading. *Psychological Science* 20(6): 721–728.
- Mkhize MT. 1983. *Amahlaya alala insila*. Pretoria: De Jager-HAUM Publishers.
- Moropa K. 2010. African voices in *Imvo Zabantsundu*: Literary pieces from the past. *South African Journal of African Languages* 30(2): 135–144.
- Nyembezi S. 1953. *Ubudoda abukhulelwa*. Pietermaritzburg: Shuter and Shooter Pty Ltd.
- Nzimande B. 2011. Minister's speech to the African Languages Steering Committee meeting. Available at: www.dhet.gov.za/LinkClick.aspx?fileticket=AqPSkw4h9K0%3D&tabid=36&mid=1181 [Accessed 20 September 2011].
- Paulson EJ. 2005. Viewing eye movements during reading through the lens of chaos theory: How reading is like the weather. *Reading Research Quarterly* 40(3): 338–358.
- Penner-Wilger M. 2008. Reading fluency: A bridge from decoding to comprehension. Available at: www.eps.schoolspecialty.com/downloads/other/acad-read/fluency_research.pdf [Accessed 27 October 2012].
- Pretorius EJ, Mampuru DM. 2007. Playing football without a ball: Language, reading and academic performance in a high-poverty school. *Journal of Research in Reading* 30(1): 38–58.
- Pretorius EJ, Mokhwesana MM. 2009. Putting reading in Northern Sotho on track in the early years: Changing resources, expectations and practices in a high poverty school. *South African Journal of African Languages* 29(1): 54–73.
- Prime SL, Vesia M, Crawford JD. 2011. Cortical mechanisms for trans-saccadic memory and integration of multiple object features. *Philosophical Transactions of the Royal Society* 366: 540–553.
- Rayner K. 2009. Eye movements in reading: Models and data. *Journal of Eye Movement Research* 2(5): 1–10.
- Rayner K, Pollatsek A. 1989. *The psychology of reading*. Hillsdale: Erlbaum.
- Rayner K, Fischer MH, Pollatsek A. 1998. Unspaced text interferes with both word identification and eye movement control. *Vision Research* 38(8): 1129–1144.
- Rayner K, Pollatsek A, Liversedge SP, Reichle ED. 2009. Eye movements and non-canonical reading: Comments on Kennedy and Pynte 2008. *Vision Research* 49(17): 2232–2236.
- ReadabilityFormulas.com. 2014. Readability Formulas. Available at: www.readabilityformulas.com/the-LIX-readability-formula.php [Accessed 11 August 2014].
- Reichle ED, Liversedge SP, Pollatsek A, Rayner K. 2008. Encoding multiple words simultaneously in reading is implausible. *Trends in Cognitive Science* 13(3): 115–119.
- Reichle ED, Rayner K, Pollatsek A. 2003. The E-Z Reader model of eye-movement control in reading: Comparisons to other models. *Behavioural and Brain Sciences* 26: 445–526.
- Shuter and Shooter Publishers 2013. Available at: www.shuters.com/home/about-us/our-history.html [Accessed 27 November 2013].
- Smith F. 1994. *Understanding reading: A psycholinguistic analysis of reading and learning to read*. 5th Ed. Hillsdale, NJ: Erlbaum.
- Tong X, McBride-Chang C. 2009. Chinese-English biscriptal reading: Cognitive component skills across orthographies. *Reading and Writing* 23: 293–310.
- Van der Merwe IJ, van der Merwe JH. 2006. *Linguistic atlas of South Africa: Language in space and time*. 1st edn. Stellenbosch: SUN Press.
- Van Rooy B, Pretorius EJ. 2013. Is reading in an agglutinating language different from an analytic language? An analysis of isiZulu and English reading based on eye movements. *Southern African Linguistics and Applied Language Studies* 31(3): 281–297.
- Verhoeven L, Reitsma P, Siegel LS. 2011. Cognitive and linguistic factors in reading acquisition. *Reading and Writing* 24(4): 387–394.
- White S. 2008. Eye movement control during reading: Effects of word frequency and orthographic familiarity. *Journal of Experimental Psychology: Human Perception and Performance* 34(1): 205–223.
- Zama JM. 1967. *Ingwe idla ngamabala*. Pietermaritzburg: Shuter and Shooter.
- Ziegler JC, Goswami U. 2005. Reading acquisition, developmental dyslexia, and skilled reading across languages: A psycholinguistic grain size theory. *Psychological Bulletin* 131(1): 3–29.

Appendix 1: Ucwangingo lokufunda isiZulu

Ungakwazi ukufunda lokhu ebhokisini ngaphansi komzuzu owodwa? Zikalele ngewashi:

Sidinga ukusebenza ngokushesha ukuthuthukisa izilimi zase Afrika enyuvesi yethu. Ukuthuthukiswa kwezilimi zase Afrika njengezilimi eziphathelene nemfundo ephakeme kubalulekile. Akusiyena uhulumeni kuphela okufanele abone ukuthi lezilimi zase Afrika zisetshenziswa ezindaweni ezifanele emiphakathini yethu. Ngokweqiniso lokhu kungumsebenzi wethu sonke. Ezikhungweni eziphezulu zemfundo, abathuthukisi bezilimi, kanye nomphakathi wonkana kufanele baqiniseke ukuthi izilimi zase Afrika ziyaqinisekiswa.

Izilimi zase Afrika zibalulekile kulelizwe. Zisivezele ukuthi singobani, futhi sifuna ukuba ngobani, kanye nendlela esifisa ukwakha ngayo i South Africa.

Uthi uMthethosisekelo, bhokisisani ukushabalala kwesisindo sezilimi zabantu bakithi kuleli, uhulumeni kumele athathe izinyathelo ezingqala zokuphakamisa isisindo nenqubo yokusetshenziswa kwezilimi zethu. Masingavumeli ukuthi izilimi zakulelizwe zishabalale. Uma kuwuthi thina esiluncele ebeleni lolulimi asiluthuthukisi, ubani ozoluthuthukisa?

(ecashunwe Nzimande, 2011)

Uma ungafunda kuleli bhokisi isikhathi esingaphansi komzuzu owodwa, nginethemba ukuthi uzothanda ukuba ingxenye yocwangingo lokufunda imibhalo yesiZulu. Indlela okubhalwa ngayo isiZulu ihluke kakhulu endleleni okubhalwa ngayo isiNgisi. Amakhono okufundwa kwesiZulu awakaqondisiseki namanje.

Ngidinga abantu abakwazi ukufunda isiZulu ngokushesha futhi okulula kubona ukufunda, abangaba nothando lokuvolontiya. Ngidinga ukuqopha indlela amehlo abo anyakaza ngayo uma befunda. Inhloso yami eyokuhlola amakhono okufunda incwadi yesiZulu.

Uma uzinikezela kulo msebenzi uzosiza ukuthuthukisa ulimi lwesiZulu njengolimi olufundwayo. Bonke abazozinikela kulolu cwangingo bayothola ulwazi mayelana namakhono okufunda kwabo. Ayikho imali ezotholakala ngokwenza lo msebenzi.

Uma uthanda ukuba ingxenye yalolu cwangingo ngoba uthanda ukufunda ngesiZulu, ngithinte ku

Sandra Land, Centre for Adult Education, University of KwaZulu-Natal

Appendix 2: Texts used in this study (though obviously not in this format)

1. Memela, N. (1992). *Sengikhulile*. p. 1.

UNomadashimane igama lami. Sengikhulile! Awu! Akukho okudlula lokhu. Ikhulu leminyaka akusiyo into encane. Phela ngazalwa ngempi yamaNgisi namaBhunu. Abanye babewabiza ngokuthi amaDashimane amaBhunu. Igama elithi Nomadashi lasukela lapho. Ubaba wayesebenza epulazini endaweni yase-Bulwer. Kwathi ngokusuka kwempi wathi umlungu kubaba, 'Ngiya empini. Hleze ngingabuyi, ngifele khona. Uma ngingabuyanga, ungakhathazeki. Ngiwenzile onke amalungiselelo okuthi umesisi anibheke nezingane zakho.' Umama ngaleso sikhathi wayekhulelwe. Wazibula ngamawele, umfana nentombazana. Bathi kuzelwe amakhosi. Bangiqamba igama elithi nginguNomkhosi. Kepha ngenxa yokuthi ngazalwa ngempi kwaduma elokuthi nginguNomadashi. Ngakhula-ke sihlezi epulazini. Sasilima, sisenga izinkomo, kudliwa amasi. Kwakujwayelekile ukuthi ingane ekhulele epulazini iwuqale isencane umsebenzi. Ngaqala ukusebenza ngingakalihlanganisi ishumi leminyaka. Umsebenzi wami kwakungowokuphatha izingane zomlungu. Ngaze ngakhula impela ngisebenza kuye lo mlungu.

2. Nyembezi, S. (1953). *Ubudoda abukhulelwa*. p. 15.

Lapha kwaMsezane kwakwakhiwe ngempela. Kwakungumuzi ovuthiwe. Indlu yayakhiwe ngesitini esibomvu, esishisiwe. Yayinovulande ezinhlangothini ezimbili. Indlu yayinamakamelo ayisishiyagalolunye. Kwakukhona indlu yokuphola, neyokudlela, nalapho ayesebenzela khona uMsezane nalapho ayegcina khona izincwadi zakhe. Phela kwakungumfo owayekuthanda ukufunda. Kunamakamelo amathathu okulala. Bese-ke kuba yikhishi nendlu lapho kubekwa khona ukudla. Uma ungena endlini yokuhlala, wawukhangwa upiyane olukhulu, luzisho nje ukuthi olwemali. Kwakukhona futhi endlini izihlalo ezithozelayo, ayethi umuntu uma ehlala kuzo ashone phansi avele ngezindlebe. Phakathi nendawo kukhona itafulana elincane kubekwe phezu kwalo isitsha esinezimbali. Phansi lapha amapulungwe ayembozwe ngocansi lwabeLungu. Kwakuyilolu hlobo othi uma uhamba phezu kwalo nezigi zife, umuntu athashazise okukamangobe. Ezindongeni kwakulenga izithombe ezimbalwa. Zonke izinto ezazikulo muzi zazikhuluma ngokusobala zithi kukwamnumzane lapha.

3. Mkhize, MT. (1983). *Amahlanya alala insila*. p. 1

Umuzi wakubo kaChithimpi Zondi umfo kaNkalimba wawunezindlu ezimangaqhwana amathathu wakhiwe ngaphansi kwegquma. Iminyango yezindlu yayibheke ngaseNyakatho ukugwema iziphapho ezazivamise ukuqhamuka ngaseNingizimu. NgaseMpumalanga yomuzi kwakunomhoshana okwakwehla kuwo umchachazwana wamanzi owawuze uyongenela emfuleni uMzimayi. Ntambama kwakuye kuheleze umoya obandayo owawuye ungene ngezi-khadlana zezicabha kwaZondi. Lamahelhelana ayeqala ngokuphola kamnandi kodwa agcine esebanda ngoku-mangalisayo lapho sekuphakathi kwamabili ebusuku ikakhulukazi uma kusebusika. Ngalelilanga kunguMgqibelo ntambama iwona lamahelhelana ayesiza ekupholiseni kwaZondi. Phela lapha emzini kaNkalimba ngalelilanga kwakusindwe ngobethole kutatazela omakoti kunjeyaya. Okungamakhehla nezalukazi kwakulokhu kubonakala kuphuma kuthi tshobe ngemva kwezindlu kuchitha lawomanzi ayengasadingeki emizimbeni yawo. Kulobuhloholo bomsindo wabonakala uDuda umfowabo omncane kaNkalimba engena endlini nezimbuzi ezimbili ayezibambe ngezimpondo eyokuma ngasemsamo. Esemamo uDuda wabatshela abasendlini ukuthi lezimbuzi kwabe kungezani.

4. Zama, JM. (1967). *Ingwe idla ngamabala*. p. 1

Kwakungenye intambama lapho selibantubahle; kusentwasahlobo iminduze seyiqalile ukuqhakasa, mhla ngiqalayo ukuyizwa inguquko empilweni yami ngoba ngakhanyelwa kusukela ngaleyo ntambama ukuthi akukho lutho oluzenzekelayo nje ngokwalo. Yonke into emhlabeni inembangela nenhloso ethile kulowo nalowo muntu. Leyontambama engiyisusela kuyo lendaba yami ngayiphawula ngoba ubaba, uNqakamatshe, wafikisana kanye nathi esangweni lomuzi wakwethu, kwazise ukuthi sasingaveli ndawonye nobaba. Ubaba wayebuya embizweni eyayibizwe nguGazi iNkosi yethu thina baThembu. Thina sobathathu madodana akhe sasiqhamuka kokumba iziphunzi esikheleni esasisivule ezinsukwini ezingaphambiyana ngokugawula izihlahla ekupheleni kwehlathi elaligudla insimu kamame omkhulu, uMaButhelezi. Umame omkhulu wayebike kubaba ukuthi isife ayesilima minyaka yonke sase sinciphile ubanzi baso ngenxa yokucinaniswa yimixhantela yezihlahlana ezazimila ezimpandeni zemithi eyayisephethelweni lalohlathi. Thina sasivela kulowo msebenzi.